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NEW PHILIPPINE ACANTHACEÆ.

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HEMIGRAPHIS Nees.

Hemigraphis fruticulosa (C. B. Clarke ms. in *Loher* nn. 4251, 4252).

Parva, fruticulosa, repens, ramosa, sparsim pilosa; foliis 10–14 mm. longis, late ovatis, obtusis, breviter petiolatis; capitulis terminalibus, paucifloris, laxiusculis; ceteroquin ut *H. reptans* Hemsl.

Corolla 1 cm. longa. Folia dura, in face superiore sublucida rhaphidibus inspersa, in face inferiore pilosula. Capsula 7 mm. longa, linearis, 6-sperma. Pollina parva, late elliptica, fere leve, poris 2.

LUZON, District of Lepanto, Cervantes to Mancayan (4465 *Merrill*) November, 1905.

Hemigraphis hirsuta T. Anders. in Journ. Agr. Hort. Soc. Ind. N. S. 1 (1868) 270.

PALAWAN (290 *Bermejos*) January, 1906, in forests at Tanabag near Puerto Princesa. New to the Philippines. Malaya.

HYPOESTES R. Br.

Hypoestes acutior sp. nov.

Foliis 10–15 cm. longis, lanceolatis aut ovato-lanceolatis, utrinque acuminatis; paniculis compositis, laxiusculis, pubescentibus, viscosulis; involucris 12 mm. longis, lobis 2, lanceolatis, apice subacute triangularibus; ceteroquin ut *H. Vidalii* C. B. Clarke.

LUZON, Province of Rizal, Bosoboso (62 *Foxworthy*) January, 1906. MINDANAO, Lake Lanao, Camp Keithley (276 *Mrs. Clemens*) February, 1906.

Hypoestes Palawanensis sp. nov.

Foliorum lamina 22 mm. longa, 10 cm. lata, glabrata, utrinque acuta; petiolo usque ad 5 cm. longo; panicula 8 cm. longa, 4 cm. lata, perdensa, hirsuta; involucris 15 mm. longis, lobis apice lanceolatis.

PALAWAN (316, *Bermejos*) January, 1906, in forests at Tanabag, near Puerto Princesa.

This species resembles *Vidal* No. 3401, an undescribed Philippine species, in which, however, the involucres are about 8 mm. long, hardly half the length of those of *H. Palawanensis*.

JUSTICIA Linn.

Justicia Vidalii (C. B. Clarke ms. in *Vidal* n. 3402).

Inflorescentia laxa stroboloidea; bracteis (foliis floralibus) spatulato-rotundatis, 5 mm. longis, proventu vix imbricatis, densius breviter villosis.

Leaf blades 18 by 8 cm., narrowed at either end, subglabrous; petioles 3 to 5 cm. long. Peduncles terminal and axillary the inflorescence paniculate. Sepals 3 mm. long, linear. Corolla 7 mm. long. Stamens 2, one anther cell below the other, tailed at the base. Pollen ellipsoid with one row of large dots longitudinal beside each stopple. Capsule 1 cm. long, stalked, hairy, 4-seeded.

PALAWAN (288 *Bermejos*). In forests at Tanabag, near Puerto Princesa, January, 1906.

RUELLIA Linn.

Ruelia (?) nudispica sp. nov.

Subacaulis, foliis 1 dm. longis, 4 cm. latis, oblongo-ellipticis, perobtusis, pilosulis; petiolo 8 mm. longo; pedunculo 5–8 cm. longo; spica 2–3 cm. longa, 6-flora; bracteis 2–4 mm. longis, lanceolatis; corolla 12 mm. longa; capsula 2 cm. longa, lineari-oblonga; seminibus 16–20, in margine dense hygroscopice villosis.

Stamens 4. Anther cells 2, divergent at the base, not tailed. Pollen globose. I had but one withered flower and obtained a very few imperfect pollen grains. The inflorescence does not suit *Ruellia*. The plant must, however, come into this group, as the seed with hygroscopic hairs will not do for *Gymnostachyum*.

PALAWAN (351 *Bermejos*) February, 1906, in forests near Puerto Princesa.

RUNGIA Nees.

Rungia lepida C. B. Clarke sp. nov.

Parva, ramulosa, undique pilosula, foliis late ovatis, usque ad 15 mm. longis, 14 mm. latis; spicis terminalibus, strobilatis, 5–6 mm. in diam., vel cylindricis, 2–3 cm. longis, vel abbreviatis 1 cm. longis, perdensis; bracteis 3 mm. in diam., rotundis, apice vix apiculatis, pilosis, in margine anguste alboscaricosis; corolla azurea.

LUZON, Lepanto (4450 *Merrill*) October, 1905.

Species *R. chinensi* Benth., affinis.

STROBILANTHES Blume.

Strobilanthes cincinnalis C. B. Clarke sp. nov.

Foliis (oppositis paullo inaequalibus) 9 cm. longis, 3 cm. latis, ellipticis, utrinque attenuatis, paullo denticulatis, in facie superiore a rhaphidibus minutis inspersis, in facie inferiore in nervo centrali puberulo-scabris; petiolo 5–8 mm. longo; inflorescentia 2–4-flora, cincinnali, floribus solitariis inter se 10–15 mm. distantibus; sepalis 12–15 mm. longis, lineari-oblongis, obtusis, fusco-nigris, hispido-scabris; capsula 15 mm. longa, glabra; seminibus 4, hygroscopice villosis.

Luzon, Lepanto, Mount Data (4574 *Merrill*) November, 1905, 2,250 m. s. m.

Strobilanthes Wallichii Nees, affinis.

NEW PHILIPPINE FERNS, II.

By EDWIN BINGHAM COPELAND.
(*From the Bureau of Education, Manila, P. I.*)

TRICHOMANES Sm.

Trichomanes Christii Copel. sp. nov.

Rhizomate late repente, 1 mm. crasso; stipitibus tenuibus, ca. 1 cm. altis, pilis brevissimis paucis pubescentibus; fronde 5–8 cm. altis, 25–35 mm. latis, acutis, tripinnatifidis; rhachi sursum anguste alata; pinnis oblongis, obtusis, infinis diminutis; segmentis integris, linearibus; urceolis infundibuliformi-campanulatis, anguste alatis alis saepius sub limbo evanescentibus, limbo leviter elato, subbilabiato, receptaculo incluso.

MINDORO, prope fluminem Baco. *Merrill* 1819.

Near *Trichomanes pyxidiferum* and *T. bipunctatum*, easily recognized by the comparatively large frond and short stipe, and included receptaculum.

CYATHEA J. Sm.

Cyathea tripinnata Copel. sp. nov.

Trunco erecto, 2 m. alto, 10 cm. crasso, albido-paleaceo, cicatricibus frondium 3.5–4 cm. altis latisque; stipitibus 60 cm. longis, 2–3 cm. crassis, basibus in coronam palearum albo-straminearum 3–5 cm. longarum 1 mm. latarum occultis, sursum rhachibusque sub tomento minuto denso fulvo atropurpureis, spinulis acutis sparsis 1 mm. altis asperis; fronde ? m. longa, 1.5 m. lata, tripinnata; pinnis medialibus maximis, 80 cm. longis, 23 cm. latis, abrupte acutis; pinnulis[I] 12 cm. longis, 20–25 mm. latis, abrupte acuminatis; pinnulis[II] ca. 12 mm. longis, 3 mm. latis, sessilibus, cordatis vel superioribus adnatis, subacutis, serrulatis, herbaceis, infra pallidioribus, paleis stramineis ad costas et rarissime ad venulas sparsis, aliter glabris; venulis apud costam furcatis; soris costalibus, ca. 1.5 mm. latis, utroque latere ca. 5, ad partem mediam pinnulae restrictis; indusio albo-stramineo, tenuissimo, in fragmenta sericea persistentia mox rupto.

LUZON, monte Mariveles, in cratere extincto, 900 m. s. m. *Copeland* 2068.

This has some characters in common with *C. arachnoidea* Hooker, but is a very distinct species.

ASPIDIUM Swartz.

Aspidium (Arcypteris) Bolsteri Copel. sp. nov.

Caudice adscendente, lignoso, 1.5–3 cm. crasso, paleis castaneis 15 mm. longis 2 mm. latis apiculatis coronato; stipitibus confertis, ca. 50 cm. altis, 8 mm. crassis, nisi ad pedes ca. 5 cm. altos alatis, alis ca. 15 mm. latis; fronde 60–80 cm. alta, ovata, pinnatifida, coriaceo-papyracea, glabra; segmentis ca. 5-jugatis, patentibus, ovatis, ca. 30 cm. longis, 10 cm. latis, acuminatis, integris, ala 15–30 mm. lata confluentibus, sinubus rhachin versus valde dilatatis; venis primariis fere ad marginem attingentibus, arcuatis, venulis transversalibus in parte fertile inconspicuis connexis; soris superficialibus, 1–1.5 mm. latis, inter venulas transversales biseriatis, in serie quaque 4–10, pagina tota usque ad marginem sorifera; indusiis nullis vel caducis.

MINDANAO, Surigao, ad terram umbrosam truncosque. *Bolster* 305.

A species with the aspect of *A. vastum* Bl., but differing in several details, besides the apparent absence of indusia.

SCHIZOLOMA Gaudich.

Schizoloma angustum Copel. sp. nov.

Rhizomate breve, repente, 3 mm. crasso, paleis minutis angustis castaneis vestito; stipitibus confertis, 3–8 cm. altis, 1–1.5 mm. crassis, atropurpureis, interdum flexuosis, deorsum pilis concoloribus 1.5 mm. longis sparsis vestitis, sursum rhachibusque triangularibus glabris, nitidis; fronde 10–18 cm. alta, ca. 1 cm. lata, pinnata; pinnis sessilibus basibus utrobique truncatis saepe super costam imbricatis, tandem deciduis, ellipticis, ca. 5 mm. latis, 4 mm. altis, rotundatis, integris, glabris, coriaceis, leviter convexis, infimis paullo remotis deflexis; venulis flabellatis, liberis, immersis; soro continuo, lato. (Tab. I B.)

PALAWAN, monte Victoria, ad saxa rivularia. *Foxworthy* 875.

Near to the next species, from which it differs most in the very broad bases of the pinnæ; except near the base of the frond, the rachis can not be seen from above, because of the overlapping pinnæ.

Schizoloma ovata (J. Sm.) *Lindsaya ovata* J. Sm. in Hook. Journ. Bot. **5**: 3; Spec. Fil. **1**: 204. *pl. 64 A.*

LUZON, *Cuming* 175, in herb. Bureau of Science; apparently not collected since Cuming's time. The figure in Species Filicum accurately represents our specimen.

Schizoloma jamesonioides (Baker) *Lindsaya jamesonioides* Baker in Journ. Bot. (1879) 39; Hooker, Icones Plant. III. **7**: *pl. 1626;* Christ in Ann. Jar. Bot. Buitenz. **15** (1898) 103.

Borneo and Celebes. Unknown in the Philippines.

Schizoloma fuligineum Copel. sp. nov.

Rhizomate repente, breve, 2–3 mm. crasso, paleis filiformibus badiis minutis vestito; stipitibus caespitosis, 7–10 cm. altis, pedibus paleaceis, aliter rhachibusque glabris, nitidis, castaneis; fronde 20–30 cm. alta, 2.5–3 cm. lata, sursum sensim angustata, pinnata, glabra; pinnis subsessilibus, ad rhachin articulatis, infimis deflexis, aliis horizontalibus, obtusis,

integris, auriculatis auriculis interdum acutis, 12–16 mm. longis, 7–10 mm. latis, coriaceis, infra fuligineis, supra nigro-castaneis; venulis liberis. (Tab. I A.)

SURIGAO, Mindanao, ad terram siccam prope marem. *Bolster* 276.

Related rather to *Schizoloma guerinianum* Gaudich., than to *S. divergens* (Wall.) Diels, which has comparatively long and narrow pinnæ and pale foliage. The pinnæ are articulate to the rhachis, but rarely separate from it. About one pinna in ten shows an anastomosis of veinlets. It is smaller than *S. pellaeiforme* (Christ) Christen. (*Lindsaya pellaeiformis* Christ, Fil. Saras. 287; Ann. Jard. Bot. Buitenz. 15 (1898) 102. *pl. 14. f. 14.*), and has comparatively much deeper pinnæ.

ATHYRIUM Roth.

Athyrium hyalostegium Copel. sp. nov.

Rhizomate ad terram repente, plerumque intertexto, 1 mm. crasso, paleis minutis ferrugineis sparsis vestito; stipitibus caespitosis, 4–8 cm. altis, filiformibus, stramineis vel viridulis, pedes versus brunnescentibus, sursum rhachibusque pilis albis 0.3 mm. longis sericeis; fronde 3–7 cm. alta, 1.7–4 cm. lata, acuminata, bipinnata, pinnis ovatis obtusis infimis pinnatis, supremis integris coadunatis; pinnulis vel segmentis anguste oblongis, obtusis, plerumque integris, herbaceis, pilis albis 0.5 mm. longis sparsis pubescentibus; venulis simplicibus; indusiis tenuibus, setaceis, rarius aspleniiformibus, saepius curvis et utroque latere venulae fere aequaliter adnatis, i. e., nephrodiiformibus; sporangiis glabris.

LUZON, ad montem Mariveles, 1,350 m. s. m. *Copeland* 2033, *Merrill* 5186, eodem.

A distinct species, but of rather uncertain generic affinity. *Athyrium* seems to me the most natural place; but ferns I can not distinguish from *Nephrodium distans* (Don) Diels sometimes have athyrioid indusia.

Athyrium aristulatum Copel. sp. nov.

Rhizomate erecto, paleis cinnamomeis lanceolatis acuminatis 3 mm. longis basibusque stipitum dense obtecto; stipitibus caespitosis, ca. 20 cm. altis, gracilibus, basibus nigrescenti-stramineis paleaceis, sursum rhachibusque glabris viridulis; fronde 20–25 cm. alta, 10–13 cm. lata, acuminata, tripinnata; pinnis lanceolato-ovatis, brevi-stipitatis, plerumque acutis; pinnulis [i] oblongis, obtusis, rhachibus anguste alatis; pinnulis [ii] oblongis, obtusis vel truncatis, adnatis, serratis vel dentatis dentibus acutis plerumque aristulatis retroflexis, membranaceis, glabris, supra atro-viridibus, infra pallidioribus; soris costalibus, indusiis brevibus, latis, rectis vel curvis, albidis.

LUZON, monte Data, 2,200 m. s. m., ad terram umbrosam. *Copeland* 1880.

Athyrium aristulatum var. **sphagnicolum** Copel. var. nov.

Forma nana, stipitibus filiformibus 6–12 cm. altis, frondibus 5–10 cm. altis, bipinnatis.

Ibidem in apricis cum Sphagno. *Copeland* 1871.

A very distinct species, conspicuous in the field for the pubescent appearance of the upper surface, caused entirely by the very sharp, elevated or reflexed teeth.

Athyrium philippinense Christ. This plant was described (Bull. Herb. Boiss. 6 (1898) 154) as a variety of *A. Sarasinorum*, but Dr. Christ writes that he now regards it as specifically distinct.

DIPLAZIUM Swartz.

Diplazium Bolsteri Copel. sp. nov.

Rhizomate adscendente; stipitibus confertis, 5–10 cm. altis, gracilibus, pedibus nigris nigro-castaneo-paleaceis, sursum rhachibusque sordide viridibus, fere glabris; fronde 20–25 cm. alta, 3.5–5 cm. lata, acuminata, bipinnata, apice pinnatifida; pinnis infimis deflexis vix diminutis, aliis adscendenti-falcatis, stipitatis, basibus acroscopicis valde auriculatis, basiscopicis late excisis, 2–3 cm. longis, acuminatis, apicem versus acute serratis, rhachin versus incisis vel pinnatis, glabris, papyraceis, infra pallidis; venulis manifestis, sorisque perobliquis; indusiis angustis, castaneo-fulvis. (Tab. II.)

SURIGAO, Mindanao, ad terram umbrosam, 200 m. s. m. *Bolster* 264.

In the group of *D. Williamsi* and *D. Whitfordi*, more slender throughout than either, and well characterized by the acuminate, falcate pinnæ, prominent auricles, and very oblique sori.

ASPLENIUM Linn.

Asplenium exiguum Beddome. Fern. South. Ind. *Pl. 146.*

LUZON, Benguet, Adouay, *Copeland* 1845.

China and India.

Dr. Christ, who knows the type of *A. yunnanense* Franchet (Cf. Bull. Soc. Bot. Fr. IV 5 (1905) 53) regards my plant (1845) as intermediate between it and *A. exiguum*. My material seems on the whole to be nearer the latter; but it varies sufficiently fully to cover both, and Beddome's name is the older. I believe that this species includes also *A. Loherianum* Christ, though the rachis is usually glabrous.

Asplenium militare Copel. sp. nov.

Rhizomate ad terram repente, 1 mm. crasso, paleis murino-fuligineis lanceolatis acuminatis 5 mm. longis densissime vestito; stipitibus 40–50 cm. altis, validis, rhachibusque castaneis, nitidis, glabrescentibus; fronde 60–100 cm. alta, 25–30 cm. lata, pinnata cum impari; pinnis brevi-stipitatis, remotis, infimis vix diminutis, majoribus 15–18 cm. longis, 20–24 mm. latis, basibus inaequilateraliter cuneatis vel acroscopice truncatis, marginibus deorsum serratis sursum biserratis, sinubus angustissimis, apicibus acuminatis in caudas productis, papyraceo coriaceis, glabris, infra olivaceis, supra potius fuligineis; venulis furcatis, angulo acuto orsis, patentibus; soris 10–12 mm. longis, curvis, costalibus.

MINDANAO, ad montem Apo, 1,800 m. s. m. *Copeland* 1505.

A very large representative of the *caudatum* group, with some resemblance to the American *A. Serra* L. et F.

Similar to this are some remarkable ferns collected in the same neighborhood by *De Vore* and *Hoover*, No. 321. There are three specimens in the material of this number which by themselves would seem to be as many distinct new species; in view of this probable mixture of species, it seems best to await another collection before describing any of them.

ADIANTUM Linn.

Adiantum opacum Copel. sp. nov.

Rhizomate breve, paleis angustissimis 4 mm. longis castaneis vestito; stipitibus confertis, 20 cm. altis, gracilibus, basibus pilis sparsis 6 mm. longis vestitis, dein glabris, sursum rhachibusque infra brevissime pubescentibus; fronde 16–20 cm. alta, ovata, tripinnata; pediculis pinnularum 1.5 mm. altis, persistentibus; pinnulis deciduis, plerumque dimidiatis, ca. 8 mm. altis, 10–12 mm. latis, glabris, pallidis, papyraceo-opacis; margine anguste cartilaginea, basiscopica plus minus recta integra, acroscopica rotundata in lobos 2–4 leviter crenata; venulis flabellatis, proximis, liberis; soro in lobo quoque uno, magno, 1.5–3 mm. lato, 1–1.5 mm. alto, nigro-fusco, sporangiis fere ad venulas restrictis. (Tab. III.)

PALAWAN, ad ripas fluminum. *Foxworthy* 869 (Iwahig), 874 (monte Victoria).

Near *A. pulchellum* Bl., but a smaller fern, with few large sori, and pinnules of different form.

PTERIS Linn.

Pteris Whitfordi Copel. sp. nov.

Species Pteridi quadriauritae qua segmentis angulo acuto, 30°–40°, costa orientibus, sinubus angustissimis fere vel usque ad costam attingentibus differt, affinis. Stipitibus confertis, 35–50 cm. altis, deorsum paleis laete castaneis 6 mm. longis lanceolatis vestitis; fronde 35 cm. plus minus alta, ovata; venulis conspicuis, glabris.

NEGROS, ad saxa prope fluminem Gimagan. *Whitford* 1660.

MONOGRAMMA Schk.

Monogramma (Pleurogramme) intermedia Copel. sp. nov.

Rhizomate erecto, gracile, basibus brunneis frondium dense obtecto; frondibus confertis, 4–6 cm. altis, 3–5 mm. latis, obtusis, deorsum sensim ad pedes sessiles angustatis, integris marginibus acieformibus, glabris, idioblastis in epidermide carentibus, coriaceis; costa supra sulca angusta notata; venulis immersis, occultis; soris continuis, medialibus, ad partem superiorem frondis restrictis, in sulcis 0.6 mm. altis marginem versus apertis immersis.

NEGROS, monte Silay, 1,000 m. s. m. *Whitford* 1503. Epiphytica.

A most distinct species. My disposition is to recognize Presl's *Pleurogramme* as a distinct genus.

POLYPODIUM Linn.

Polypodium Merritti Copel. sp. nov.

Rhizomate breve, repente, 2 mm. crasso, paleis 2 mm. longis lanceolatis glanduloso-ciliatis fulvo-ferrugineis vestito; stipitibus 1–2 cm. altis, non ad rhizomatem articulatis, tenuibus, frondeque tota pilis brevissimis hyalinis sparsis subglandulosis; fronde 10–17 cm. alta, ca. 1 cm. lata, vix sursum angustata, crasso-herbacea, fere ad rhachin pinnatifida; segmentis oblongis, plerumque obtusis, decurrenti-confluentibus, obtuse dentatis dentibus utroque latere 1–3; venulis simplicibus, inconspicuis, intra

marginem evanescentibus; soris in segmento quoque 2–5, costalibus, orbicularibus, superficialibus, interdum confluentibus.

MINDORO, ad montem Halcon; de ramis muscosis pendente. *Merritt.*

A probable relative of *P. solidum* Mett., and *P. corticolum* C. Chr. (*P. glandulosum* Hook.); but longer, narrower, less coriaceous than the former and not glabrous; larger than the latter, and essentially different in the position of the sori, which are subterminal on the veinlets of *P. corticolum*, but basal on these of *P. Merritti.*

Polypodium (Phymatodes) Whitfordi Copel. sp. nov.

Rhizomate ad ramos repente, 1.5–2 mm. crasso, paleis pallide ferrugineis denique sordidis lanceolatis apiculatis 3 mm. longis persistentibus vestito; stipitibus remotis, filiformibus, frondis sterilis 10–35 mm., frondis fertilis 25–45 mm. altis, glabris; frondibus glabris, coriaceis, sterile 10–20 mm. longa suborbiculare, vel usque ad 35 mm. longa ovata, obtusa, margine angustissima cartilaginea incisula; costa infra nigra, venis primariis rectis, marginem fere attingentibus, venulis ca. 3 transversalibus connexis, venulis liberis inclusis paucis, excurrentibus; fronde fertile 20–60 mm. longa, 6–9 mm. lata, minoribus integris obtusis, majoribus crenatis acutis, basibus cuneatis; soris utroque latere uniseriatis, medialibus, subimmersis et supra prominulis, haud ad partem superiorem frondis restrictis. (Tab. IV B.)

LUZON, ad montem Mariveles, 1,300 m. s. m., ad ramos muscosos epiphyticum. *Copeland* 2032, *Merrill* 3244.

This is in the group of *P. neglectum* Bl., and *P. Nummularium* Mett. It may be the *P. rhynchophyllum* of Christ (Bull. Herb. Boiss. **6** (1898) 199) but not of Hooker Sp. Fil. **1**: 65. It is decidedly smaller than this Indian fern, with rather immersed sori not confined to the upper part of the frond, and larger areolæ with excurrent veinlets.

Polypodium Nummulárium Mett. I am unable to distinguish *P. hammatisorum* Harrington. The plant is a *Phymatodes*, rather than a *Goniophlebium.*

Polypodium (Schellolepis) benguetense Copel. sp. nov. *P. mengtzeense* Copel. in Phil. Journ. Sc. **1** (1906) Suppl. 161. *Tab. 21*, non Christ in Bull. Herb. Boiss. **6** (1898) 869.

Rhizomate repente, 3. mm. crasso, paleis atro-fulvis 2 mm. longis lanceolatis acuminatis dense vestito; stipitibus ca. 15 cm. altis, rhachibusque plerumque stramineis, glabrescentibus; fronde 20–25 cm. alta, 12–20 cm. lata, pinnata; pinnis 1–2 cm. inter se remotis nec infimis multo remotioribus, plerumque oppositis, sessilibus, supremis distinctis neque decurrentibus nec multis adnatis, subcordatis vel hastato-dilatatis, acuminatis, acute serratis, membranaceis, glabris; costa prominente, venis inconspicuis, seriem unam areolarum, interdum alteram minorum efficientibus; soris subimmersis.

LUZON, Benguet, Ambuklao, 750 m. s. m., ad terram. *Copeland* 1892 Typus.

This species was prepared for publication in my preceding paper; but, after the galley proof was corrected, I received a letter from Dr. Christ identifying *Elmer's* 6406 as *P. mengtzeense.* Having only the description of *P. mengtzeense,*

but no specimens, I could not do otherwise than accept the determination. He now regards my plants as distinct. Judging by the description, the two species are very different, *P. mengtzeense* being related rather to *P. argutum*.

Polypodium (Selliguea) Bolsteri Copel. sp. nov.

Rhizomate late repente, 2–3 mm. crasso, paleis, subatris aculeato-ovatis 2–3 mm. longis vestito, denique nudo; frondibus sparsis, sessilibus vel brevi-stipitatis, 20–30 cm. longis, 1–2 cm. latis, utrinque sensim attenuatis, integris, glabris, membranaceis; venis primariis flexuosis, marginem vix attingentibus, venatione tenuiore irregulare, venulis liberis inclusis; soris irregularibus, elongatis vel in seriebus solitariis instructis, venis primariis parallelibus. (Tab. IV A.)

MINDANAO, Surigao. *Bolster* s. n.

Different from *P. Selliguea* in the almost sessile fronds, irregular areolæ, and short sori.

Polypodium (Selliguea) Feei Mett.

MINDANAO, Prov. of Surigao. *Bolster* 337.

Java.

GLEICHENIA Sm.

Gleichenia dolosa Copel. nom. nov. (*Dicranopteris dolosa* Copeland in Perkins's Fragmenta Fl. Philip. (1905) 193.)

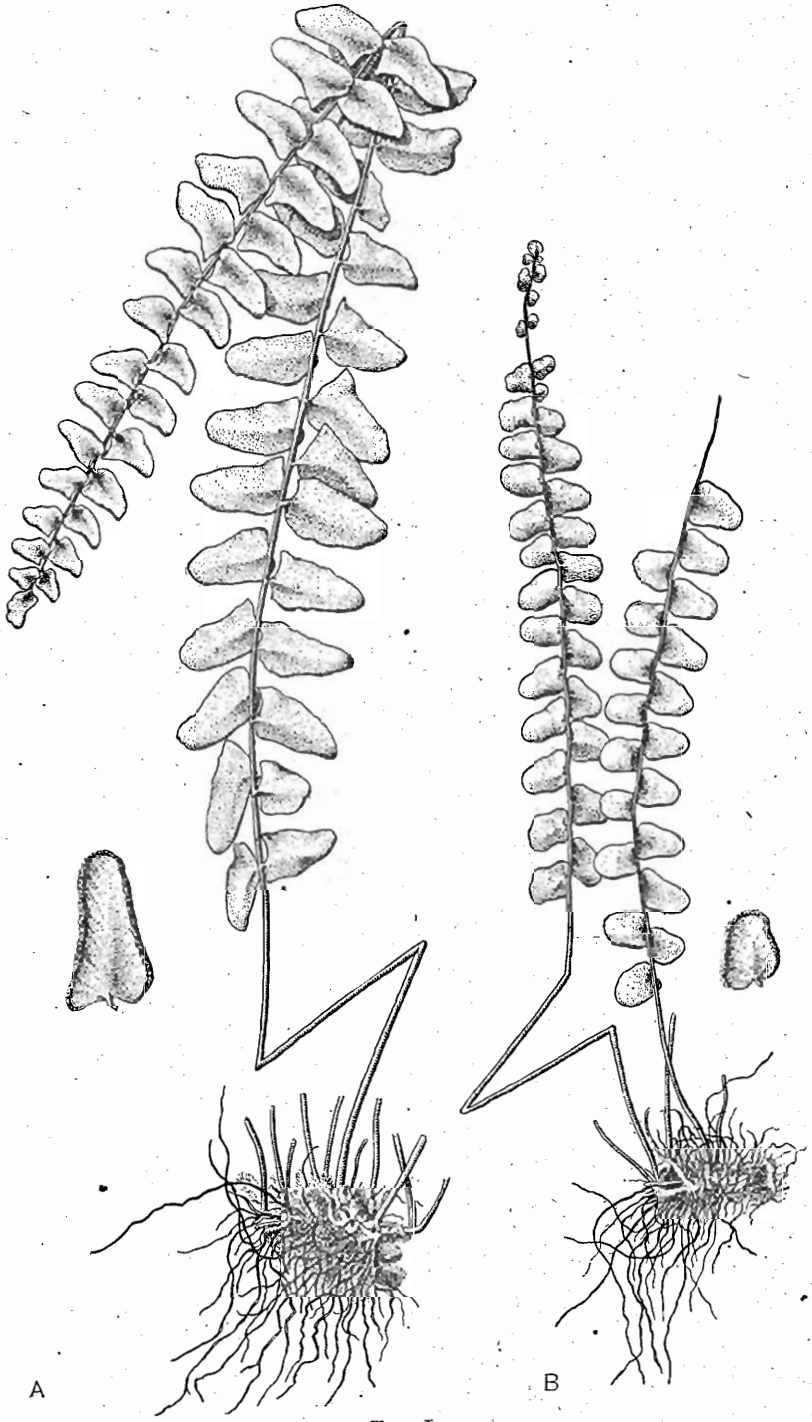
Gleichenia crassifolia (Presl) Copel. (*Mertensia crassifolia* Presl in Epim. Bot. p. 23, *Tab. 13.*)

This has been treated as a form of *G. linearis*, but seems to me to have very sufficient specific characters. Our specimens are from Mount Apo, MINDANAO; *Copeland* 1160, 1458, *De Vore* and *Hoover* 342.

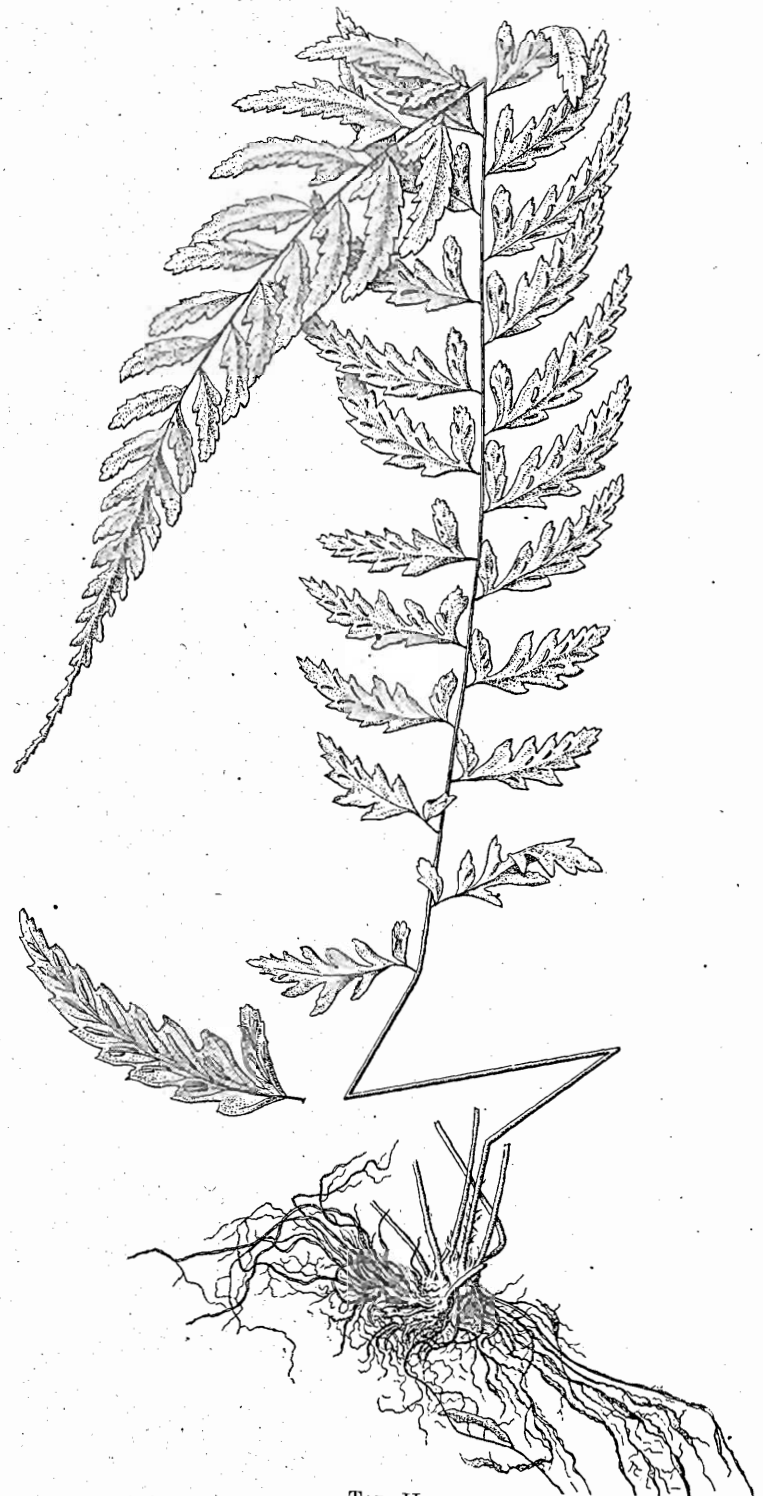
LIST OF PLATES.

(All drawings by Hugo Navarro, natural size.)

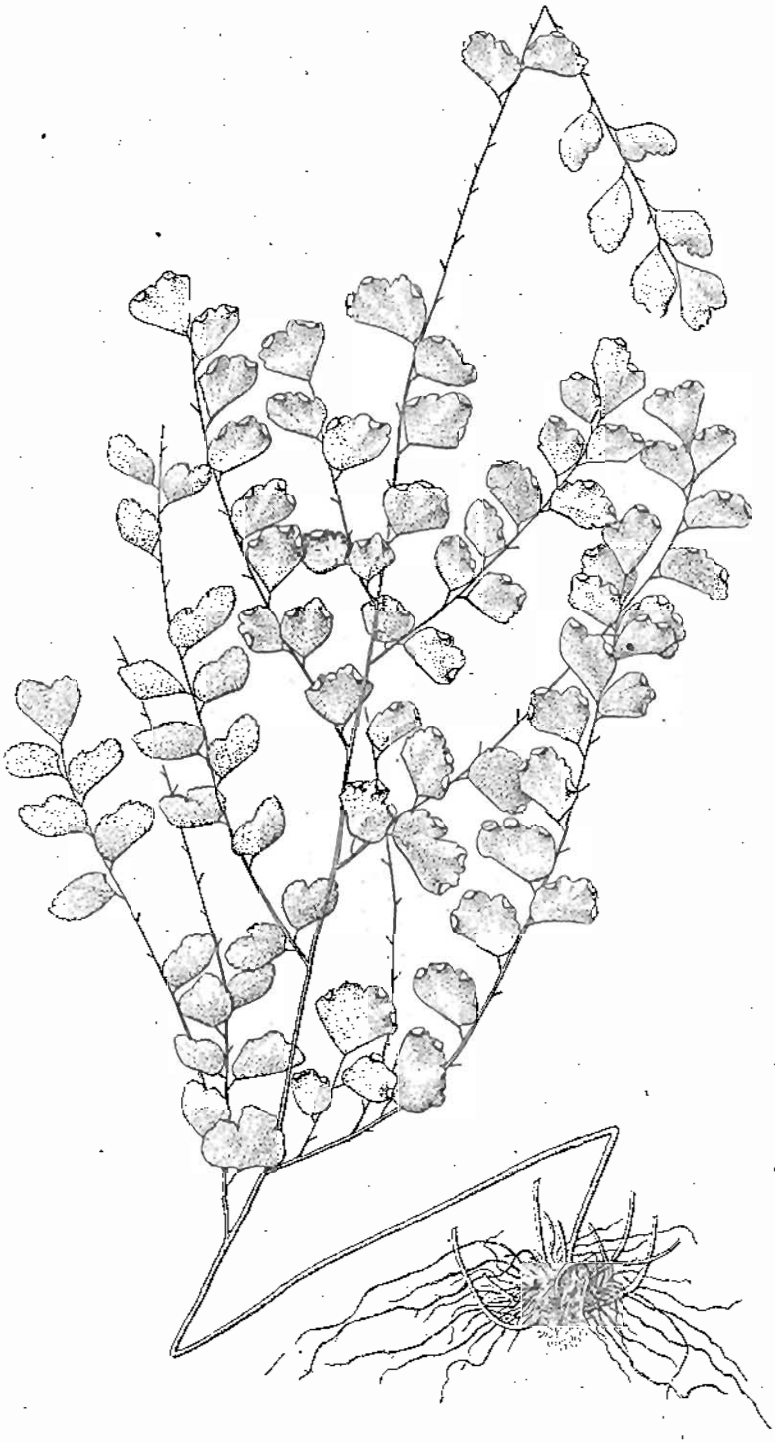
TAB. I. A, *Schizoloma fuligineum* Copel.
B, *Schizoloma angustum* Copel.
II. *Diplazium Bolsteri* Copel.
III. *Adiantum opacum* Copel.
IV. A, *Polypodium Bolsteri* Copel.
B, *Polypodium Whitfordi* Copel.



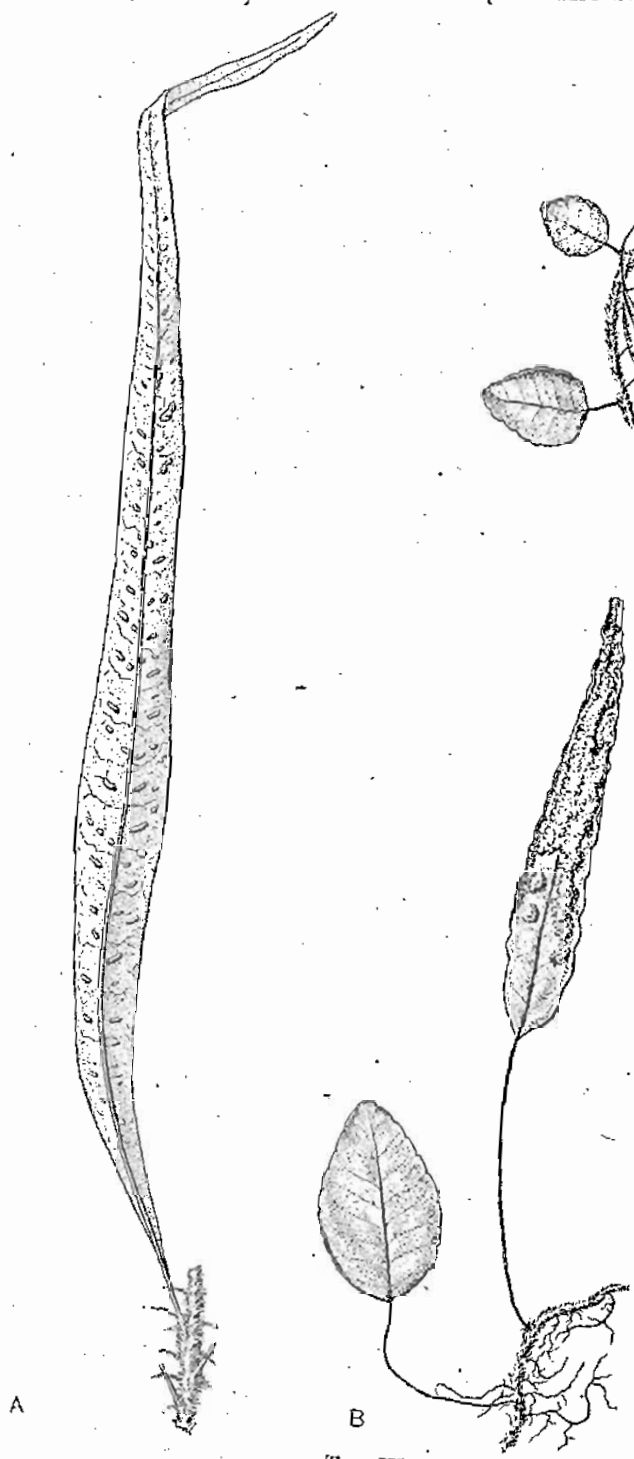
TAB. I.



TAB. II.



TAB. III.



TAB. IV.

NOTES ON PHILIPPINE GRAMINEÆ, II.

By E. HACKEL.

(*Graz, Austria.*)

The present article, as was the case with the preceding paper published under this title,[1] has been compiled from notes and identifications submitted by Dr. Hackel, the material having been supplied to him in part for identification and in part for verification of my own determinations. In the present short paper, including the species and varieties described as new, 29 species and varieties and 4 genera are added to the Philippine flora, with one exception, all from a collection made in less than a month's time in the highlands of Benguet and Lepanto, Northern Luzon. The very striking character of the collection, other than such more or less characteristic northern types as *Pollinia nuda* Trin., *P. imberbis* var. *Willdenowiana* forma *monostachya* Hack., *Arthraxon ciliaris* Beauv., varieties, *A. microphyllus* Hochst., *Panicum pedicellare* Hack., *P. villosum* Lam., *Calamagrostis arundinacea* Roth, var. *nipponica* Hack., and *Brachypodium silvaticum* Beauv., is the presence of a series of distinct southern or Australian types, such as *Chionachne biaurita* Hack., *Pollinia irritans* Benth., *Andropogon Baileyi* F. Muell., *A. fragilis* R. Br., var. *luzoniensis* Hack., *A. filipendulus* Hochst., var. *lachnatherus* Hack., *Ischaemum arundinaceum* F. Muell., var. *radicans* Hack., and *Microlaena stipoides* R. Br.—(E. D. M.)

CHIONACHNE R. Br.

Chionachne biaurita Hack. sp. nov.

Annua. Culmus erectus 4–5 dm. altus robustus plurinodis, ex omnibus nodis ramos floriferos saepius binos elongatos ramulosos subfastigiatos procreans, semiteres, canaliculatus, glaberrimus. Vaginae internodiis multo breviores, laxae, compressae, pilis rigidis basi grosse tuberculatis hirsutae v. solis tuberculis scabrae. Ligula series ciliorum brevium. Laminae e basi angustata lineari-lanceolatae acutae, 12–24 cm. longae, ad 10 mm. latae, flaccidulae, virides, praeter margines superne scabras glaberrimae vel pilis paucis adspersae, tenuinerves. Spicae in apice ramorum

[1] *Publications of the Bureau of Government Laboratories*, Manila (1906), No. 35, 79–82.

ramulorumque tenui-filiformium 10–15 cm. longorum vel in axilli foliorum inferiorum solitariae, binae v. ternae, breviter pedunculatae vagina ventricosa folii fulcientis velut spatha communi maxima part obvolutae, singulae, singula spatha subventricosa laminam brevissimar gerente pedunculam aequante v. superante, circ. 2 cm. longa, glabra, virid fultae, lineares, a dorso subcompressae, 1.5–2 cm. longae, pallide virides spiculis ♀ sessilibus circ. 4 in simplici serie superpositis et ternion terminali spicularum mascularum constantes. Rhacheos articuli spicular ♀ subaequantes v.ea ⅓ breviores, late clavati, praeter basim pilosulam glab errimi, inanes, oblique secedentes. Spiculae foemineae 2 inferiores soli tariae, adjecto pedicello sterili brevi rhacheos articulo basi adnato; spiculi ♀ duabus superioribus adstat singula spicula ♂ vel neutra pedicellata terminatur spica spicula ♂ pedicellata cujus pedicelli basi insidet spicul ♂ sessilis et adstat altera spicula ♂ pedicellata. Spiculae foemineae gluma I oblonga, apice late biaurita, auriculis semiovatis acutiusculi antice denticulatis ciliolatis subherbaceis nervis reticulatis viridibus per cursis, patentibus, in anguli interioris marginibus costa alba notatis marginibus exterioribus inflexis, cum callo 1.5 mm. longo obtusissim glabro et cum auriculis 3 mm. longis 7–7.5 mm. longa, dorso subconvex chartaceo albido glaberrimo multinervis, lateribus inflexis papilloso scaberula. Gluma II I^{am} sine auriculis aequans (4.5 mm. lg.) ovata subito acuminata, chartacea, plana, nervo medio prominente, marginibu inflexis, glaberrima, 7–5-nervis. Gluma III II^{am} aequans, ovato-oblonga breviter acuminata membranacea tenuissime 3-nervis glabra, scabra vacua; IV III^{ae} simillima, ejus palea anguste linearis, bidentula Caryopsis late oblonga, a dorso compressa pallida, 2.5 mm. longa, bas emarginata, embryone caryopseos ¾ aequante, macula hilari valde depress atroviolacea. Spiculae musculae lanceolatae, 5 mm. longae, pallidae viridi-striatae, glaberrimae, pedicellis glaberrimis tenuibus (non clavatis) fultae (biflorae ?); gluma I lanceolata, acutiuscula, planiuscula, 7–9 nervis; II I^{am} aequans, lanceolata acuminata 3-nervis; III hyalina cum palea (et flore ♂ ?); IV ei simillima, palea binervis. Stamina 3; antheris 3 mm. longis.

LUZON, Benguet, ad flumen Bued (4282 *Merrill*) October 22, 1905, 1,000 m. s. m

Species peculiaris, ab omnibus hujus generis notis valde diversa spiculis mas culis ad ternionem terminalem et duas quae spiculas foemineas superiores comi tantur redactis, spiculae fœmineae gluma I apice late biaurita.

IMPERATA Cyr.

Imperata exaltata Brongn. subsp. **Merrillii** Hack. subspec. nov.

Differt a typo laminis innovationum angustis subconvolutis, panicula brevi densissima, racemis floriferis ex ipsa rhachi communi paniculae enascentibus.

LUZON, Province of Benguet, Mount Tonglon (Santo Tomas), (4813 *Merrill*) November 12, 1905. Open places at about 2,200 m.

Typical *Imperata exaltata* Brongn. (*Cuming* 1801, 2411) is a very tall grass with broad, flat leaves, pyramidal, somewhat loose panicles, the flowering racemes being born on branchlets of the second or third degree; the primary branches are up to 10 or 12 cm. long dividing into secondary branchlets and the secondary into tertiary which are the flowering racemes. The structure of the spikelets in both typical *Imperata exaltata* and the subsp. *Merrillii* is identical and the culms are hollow in both, but solid in all other species of the genus. The form here described is probably one developed in the high mountains.

POLLINIA Trin.

Pollinia nuda Trin. in Mém. Acad. Pétersb. VI. **2** (1833) 307; Hack. in DC. Monog. Phan. **6** (1889) 178; Rendle in Journ. Linn. Soc. Bot. **36** (1904) 356.

LUZON, Province of Benguet, Pauai (4727 *Merrill*) November 8, 1905; Mount Tonglon (4842 *Merrill*) November 12, 1905. Thickets and open places 2,000 to 2,200 m. Not previously reported from the Philippines. Japan to the Luchu Archipelago, China, northern India, and South Africa.

Pollinia imberbis Nees, β **Willdenowiana** Hack. l. c. 178, forma **monostachya** (Franch. et Sav.). *Pollinia japonica* var. *monostachya* Franch. et Sav.

LUZON, Province of Benguet, Pauai (4707 *Merrill*) November 8, 1905. In open thickets at about 2,100 m. The variety from Japan to southern China, northern India and Java, the form from Japan.

Pollinia irritans Benth. Fl. Austr. **7** (1878) 525; Hack. l. c. 155.

LUZON, Province of Benguet, Ambuklao to Daklan (4388 *Merrill*) October 25, 1905. In open grass lands at about 1,000 m. Previously known only from Australia (Queensland).

Pollinia argentea Trin. var. **lagopus** Hack. in Govt. Lab. Publ. **35** (1906) 79.

This variety has been re-collected at the type locality, Mount Arayat (4222 *Merrill*) September, 1905, and also in Northern Luzon: Province of Benguet, Baguio, to Ambuklao (4365 *Merrill*) October 24, 1905; District of Lepanto, Mount Data (4535 *Merrill*) November, 1905, ascending to 2,100 m.

ROTTBOELLIA Linn. f.

Rottboellia ophiuroides Benth. var. **intermedia** Hack. var. nov.

Differt a typo gluma I supra medium tantum anguste alata, in typo a ¼ inferiore latius alata, ala sursum dilatata. Vergit ad *R. striatam* Nees.

LUZON, Province of Benguet, Bugias (4667 *Merrill*) October 28, 1905; Baguio (6393 *Elmer*) May, 1904. Intermediate between *R. ophiuroides* and *R. striata*, but nearer the former.

ARTHRAXON Beauv.

Arthraxon microphyllus Hochst. in Flora **39** (1856) 188; Hack. l. c. 351, var. **genuinus** Hack. l. c. 352.

LUZON, Province of Benguet, Baguio to Ambuklao (4363 *Merrill*) October, 1905; Suyoc to Pauai (4719 *Merrill*) November 7, 1905; District of Lepanto, Mount Data (4485 *Merrill*) November 4, 1905. On dry and damp banks, 1,800 to 2,100 m. British India to Burma, Tonkin, Ceylon, and Abyssinia. Not previously reported from the Philipppines and not known from Malaya.

Arthraxon ciliaris Beauv., subsp. **Langsdorffii** Hack. l. c. 354.

LUZON, District of Lepanto, Mount Data (4628 *Merrill*) November 5, 1905. In open wet lands at 1,600 m. Japan and China.

Arthraxon ciliaris Beauv., subsp. **nudus** Hack. l. c. 356.

LUZON, Province of Benguet, Kabayan (4427 *Merrill*) October 27, 1905. British India.

Arthraxon ciliaris Beauv. subsp. **Quartinianus** Hack. l. c. 356.

LUZON, Province of Benguet, Bued River, Bugias and Pauai to Baguio (4272, 4677, 4704 *Merrill*) October, November, 1905. British India and tropical Africa.

ISCHAEMUM Linn.

Ischaemum arundinaceum F. Muell. var. **radicans** Hack. var. nov.

Differt a typo (australiensi) culmo in parte inferiore decumbente e nodis radicante graciliore, foliis, racemis, spiculis minoribus, rhacheos articulis breviter ciliatis, gluma I distinctius reticulato-nervosa.

LUZON, Province of Benguet, Baguio (4264 *Merrill*) October 22, 1905. Abundant on banks and slopes in the pine region at about 1,500 m.

The type of this species is a tall, erect grass 1 meter high, somewhat larger in all its parts than the variety here described, but the structure of the spikelets in both is essentially the same. In the type the nerves of glume I anastomose only in the upper part.

Ischaemum Merrillii Hack. sp. nov.

Perenne. Culmi erecti, graciles, circ. 4 dm. alti, teretiusculi, glaberrimi, multinodes, nodis pluribus in culmi basi confertis additis 3 superioribus plus minus remotis, summo supra medium culmi sito, simplices vel ramulo foliifero aucti. Vaginae superiores internodiis breviores, inferiores iis longiores, subcompressae, superiores subcarinatae, secus marginem exteriorem et prope os pilis adspersae, ceteram glaberrimae. Ligula membranacea ovato-oblonga obtusa in vaginam decurrens, 2.5–4 mm. longa, nervosa, ciliis parcis longis pilisque dorsalibus vestita. Laminae lineari-lanceolatae basi subito in petiolum subdistinctum (in foliis inferioribus 1.5 cm., in superioribus 0.5 cm. longum) angustatae, tenuissime acuminatae, 5–8 cm. (summa 1–2 cm.) longae, 6–8 mm. latae, patentes v. patentissimae, rigidulae, virides, utrinque (praesertim subtus) pilis tenuibus basi tuberculatis parce conspersae, marginibus scabrae, tenuinerves. Racemi in apice culmi bini sibi appressi, alter sessilis alter pedunculo circ. 5 mm. longo fultus, circ. 5 cm. longi, 4 mm. lati, densiflori; rhacheos articuli spiculam dimidiam paullo superantes, crassi, trigoni, utroque margine pilis brevibus (articulo 3–4-plo brevioribus) suberectis rigidulis albidis ciliati, margine interiore fere rectilinei. Spiculae sessiles obovato-oblongae, cum callo 1.5 mm. longo obtuso breviter parceque barbato 7 mm. longae, 2 mm. latae, livide violascentes. Gluma I obtuse bidentula, marginibus anguste inflexis, flexuris non alatis, chartacea, in $\frac{1}{3}$ inferiore subcoriacea, praeter nervos flexurales 6-nervis, nervis fere ad apicem productis non anastomosantibus, dorso plano saltem superne scaberula; II I^{am} aequans, ovata, acute carinata, apice obtusiusculo latere compressa, subchartacea, 5-nervis, superne scabra; III quam I paullo brevior, ovato-lanceolata acuta hyalina glabra 3-nervis; ejus palea lanceolata acuta, binervis; IV III^{am} aequans, elliptica, in $\frac{1}{3}$ superiore bifida, glabra, e sinu emittens

aristam perfectam circ. 12 mm. longam, cujus columna glaberrima quam subula ⅓ brevior est. Palea gluman aequans, ovato-lanceolata, acuta integra enervis. Spiculae pedicellatae pedicellis circ. 4 mm. longis articulis simillimis sed obtuse trigonis fultae, suboblique lanceolatae, circ. 6 mm. longae, violascentes; gluma I acuta integra marginibus anguste inflexa flexura interiore a basi ad apicem anguste alata, exteriore anguste marginata, 7-nervis, scaberula; II et III ut in spiculis sessilibus; IV, integra mutica acutiuscula, 3-nervis, flore inf. ♂, superiore ♀.

Luzon,. Lepanto, monte Data (Balili). In locis apertis udis, 1,500 m. s. m. (4622 *Merrill*) November, 1905.

Affinis *I. arundinaceo* F. Muell., quod differt ligula brevi glabra, laminis basi angustatis quidem sed non petiolatis, racemosum articulis longius ciliatis et imprimis gluma I spiculae sessilis in ½ superiore utrinque distincte alata nervis 5 infra apicem evanidis superne reticulatim anastomosantibus percursa.

ANDROPOGON Linn.

Andropogon fastigiatus Sw.; Hack. l. c. 393.

Luzon, District of Lepanto, Cervantes to Balili (4461 *Merrill*) November 3, 1906. Dry open grassy slopes at about 1,000 m. Not previously reported from the Philippines. Tropical America, Asia, and Africa.

Andropogon fragilis R. Br. var. **luzoniensis** Hack. var. nov.

Differt a typo gluma I in spicula ♀ hirtula, pedicello spiculae tabescentis glabro.

Luzon, Province of Benguet, Ambuklao to Daklan (4386 *Merrill*) October 25, 1905; District of Lepanto, Cervantes to Mancayan (4468 *Merrill*) November 3, 1905.

The species is known only from Australia.

Andropogon micranthus Kunth, var. **spicigerus** Hack. l. c. 489.

Luzon, Province of Benguet, Mount Tonglon (4836 *Merrill*) November 12, 1905; Baguio (5918 *Elmer*) March, 1904. This variety has not previously been reported from the Philippines. Southern China to Australia and New Caledonia.

Andropogon Baileyi F. Muell. in Victorian Naturalist 7 (1891) 16. *Sorghum laxiflorum* Bailey.

Luzon, Province of Benguet, Ambuklao to Daklan (4399 *Merrill*) October 25, 1905.

A very rare Australian species, the Luzon plant agreeing with the cotype of the species.

Andropogon filipendulus Hochst. var. **lachnatherus** Hack. l. c. 635.

Luzon, Province of Benguet, Ambuklao to Daklan (4398 *Merrill*) October 25, 1905. Queensland and New South Wales.

Andropogon filipendulus Hochst. var. **lachnatherus** Hack., forma **bispiculata** Hack.

Racemo utroque spiculas ♀ duas continente.

Luzon, Province of Benguet, Bued River (4298 *Merrill*) November 14, 1905. In true var. *lanchnatherus* the longer peduncled raceme has only one ♀ spikelet.

Andropogon leptos Steud. Synopsis 1 (1855) 397; Hack. in DC. Monog. Phan. 6 (1889) 537.

LUZON, Province of Benguet, Bued River (4322 *Merrill*) November 14, 1905.

A very important find, this species having become almost obsolete, being known only from a single specimen, the collector being unknown, the place of collection being indicated only by the word "Andor," which I have been unable to locate. I would have guessed it to be in E. India, but Hooker does not enumerate the species in his Flora of British India. ["Andor" is apparently not a Philippine locality.—E. D. M.]

ARUNDINELLA Raddi.

Arundinella agrostoides Trin. var. **ciliata** Hook. f. Fl. Brit. Ind. 7 (1897) 71.

LUZON, Province of Benguet, Baguio (4328 *Merrill*) October, 1905. This variety was previously known from British India.

ISACHNE R. Br.

Isachne debilis Rendle in Forbes & Hemsl. Journ. Linn. Soc. Bot. 36 (1904) 322.

LUZON, Province of Benguet, Kabayan (4431 *Merrill*) October 27, 1905; Mindanao, Mount Apo (355 *De Vore & Hoover*) May, 1903.

Isachne debilis Rendle, var. **incrassata** Hack. var. nov.

Differt a typo foliis lineari-lanceolatis marginibus incrassatis.

MINDANAO, District of Davao, Mount Apo (358 *DeVore & Hoover*) May, 1903.

Isachne monticola Büse, forma.

LUZON, Province of Benguet, Pauai (4709 *Merrill*) November 8, 1905; District of Lepanto, Mount Data (4626 *Merrill*) November 5, 1905. I am now of the opinion that these plants correspond better with the description of *Isachne monticola* than those previously so determined.[2]

PANICUM Linn.

Panicum pedicellare (Trin.). *Paspalum pedicellare* Trin. ex Steud. Nomen. ed. II 2 (1841) 272; Hook. f. Fl. Brit. Ind. 7 (1897), 19.

LUZON, Province of Bataan, Lamao River (3164 *Merrill*) October, 1903; Province of Pampanga, Mount Arayat (4225 *Merrill*) September, 1905. Not previously reported from the Philippines. British India and Burma.

Panicum Crus-galli Linn. var. **muticum** Doell.

LUZON, Province of Benguet, Bued River (4307 *Merrill*) November 14, 1905. Widely distributed in tropical and temperate regions.

Panicum nodosum Kunth Enum. Pl. 1 (1833) 97. *Panicum multinode* Presl, Rel. Haenk. 1 (1830) 303, non Lam. 1797. *Panicum ouonbiense* Balansa in Morot, Journ. de Bot. 4 (1890) 141; Mez in Perk. Frag. Fl. Philip. (1904) 143.

LUZON, Province of Nueva Vizcaya, Quiangan (127 *Merrill*) June, 1902; Caraballo Sur Mountains (255 *Merrill*) May, 1902; Province of Pampanga, Arayat (4228 *Merrill*) September, 1905; Province of Cavite, Maragondong (4182 *Merrill*) July, 1905; Province of Bataan, Lamao River (533 *Whitford*) July, 1904; Province of Tayabas, Atimonan (135 *Gregory*) August, 1904. SIBUYAN (13 *McGregor*) July, 1904. CULION (527 *Merrill*) December, 1902.

Balansa in distinguishing *Panicum ouonbiense* from *P. nodosum* Kunth (*P. multinode* Presl, non Lam.) took for the type of Kunth's species the East Indian

[2] *Publications of the Bureau of Government Laboratories,* Manila (1906), No. 35, 79.

form (*P. Arnottianum* Nees) most common in European herbaria. Kunth's *Panicum nodosum* was, however, based on Presl's *Panicum multinode*, the type being from Luzon, and moreover both Presl's and Kunth's diagnoses apply to the Philippine material cited above. I am of the opinion that Haenke's Luzon plant, the type of *P. nodosum* is identical with the material cited above and with Balansa's Cochin China material, and that therefore to this form belongs the name *Panicum nodosum typicum*, and to the Indian plant the name *P. Arnottianum* as a species or variety.

Panicum villosum Lam. Illustr. 1 (1791) 173; Hook. f. Fl. Brit. Ind. 7 (1897) 34.

LUZON, Province of Benguet, Baguio to Ambuklao (4360 *Merrill*) October 24, 1905. Not previously reported from the Philippines. British India to Ceylon and China. A low form, the culm not naked below the panicle as in the typical form.

MICROLAENA R. Br.

Microlaena stipoides R. Br. Prodr. (1810) 210; Benth. Fl. Austr. 7 (1878) 552.

LUZON, Province of Benguet, Mount Tonglon (4831 *Merrill*) November 12, 1905; Pauai to Baguio (4696 *Merrill*) November 9, 1905; District of Lepanto, Mount Data (4543 *Merrill*) November, 1905. The first two numbers cited were found on dry, open, grassy slopes and ridges at about 1,700 m., the last in wet, grassy and sphagnum borders of a small lake at 2,200 m. Australia and New Zealand. The five known species of this genus have previously been known only from Australia and New Zealand, the present species being the first one to be found north of Australia.

SPOROBOLUS R. Br.

Sporobolus ciliatus Presl, Rel. Haenk. 1 (1830) 242. *Sporobolus piliferus* Kunth, Enum. 1 (1833) 211, var. α (excl. var. β); Hook. f. Fl. Brit. Ind. 7 (1897) 251.

LUZON, Province of Benguet, Baguio to Ambuklao (4362 *Merrill*) October 24, 1905; Suyoc to Pauai (4718 *Merrill*) November 7, 1905. On dry banks and in open grass lands, 1,500 to 2,100 m. Not previously reported from the Philippines. Tropical Asia and America.

CALAMAGROSTIS Roth.

Calamagrostis arundinacea Roth., var. **nipponica** Hack. in Bull. Herb. Boiss. 7 (1899) 652. *Calamagrostis nipponica* Fr. & Sav.

LUZON, Province of Benguet, Pauai to Baguio (4679, 4701 *Merrill*) November 9, 1905; District of Lepanto, Mount Data (4564 *Merrill*) November 4, 1905. Not quite identical with the var. *nipponica* from Japan, but the differences are very slight. The species widely distributed in Japan and Asia, the variety in Japan.

BRACHYPODIUM Beauv.

Brachypodium silvaticum Beauv., subsp. **luzoniense**, subsp. nov. (vel. spec. propr.?) Differt a typo omnibus partibus glaberrimum.

LUZON, Province of Benguet, Pauai (4710 *Merrill*) November 8, 1905; Mount Tonglon (4830 *Merrill*) November 12, 1905; District of Lepanto, Mount Data (4536 *Merrill*) November, 1905.

Brachypodium silvaticum Beauv., var. **asperum** var. nov.

Differt a typo culmo aspero.

LUZON, Province of Benguet, Pauai to Baguio (4698 *Merrill*) November 9, 1905.

Brachypodium silvaticum Beauv., is a highly variable species widely distributed in Japan, North Asia, the mountains of India, and Europe. No representative of the genus having previously been discovered in the Philippines.

MYRSINACEÆ NOVÆ PHILIPPINENSES.

By C. Mez.
(*University of Halle, Halle, Germany.*)

MAESA Forsk.

Maesa Elmeri Mez sp. nov.

Foliis glaberrimis, ovato-ellipticis vel ellipticis, basi brevissime acutis vel subrotundatis, apice breviter lateque acutiusculis, margine dense subgrosseque crenatis, haud reticulatis vero dorso lineis ∞ brevibus nervelliformi-anastomosantibus glandulosis praeditis, punctis prominentibus destitutis; inflorescentiis plane axillaribus nec e ramulis abbreviatis prodeuntibus, bene compositis, per anthesin quam petioli brevioribus; prophyllis parvis; sepalis rotundatis, lineatis, margine integerrimis nudisque, dorso haud lepidotis; petalis ad ½ longit. connatis, lobis rotundatis, lineatis; staminibus petalis alte insertis, filamentis quam antherae brevioribus; stylo laevi; placenta multiovulata.

Erecta vel subscandens (ex cl. *Elmer*!); ramulis validis, novellis minutissime perobscureque pilosis, adultis castaneis denseque lenticellis pallidis verruculosis obtectis. Folia petiolis gracillimis usque ad 40 mm. longis mihi visis stipitata, ± 0.1 m. longa et 55 mm. lata, chartacea, fere opaca. Inflorescentiae submultiflorae, dense 2-pinnatim panniculatae, primum valde abbreviatae vix ultra 20 mm. longae demum fructiferae auctae usque ad 80 mm. metientes petiolosque tunc satis superantes, glaberrimae, e spicis densis, per anthesin vix ultra 10 mm. longis compositae; bracteis minutis, lanceolato-triangularibus, pedicellos vix 0.5 mm. longos subaequantibus. Flores albidae (ex cl. collectore!) 2 mm. longi. Baccae depresse vel perfecte globosae, leaves, haud maculatae, usque ad 3.5 mm. diam. metientes.

Luzon, prov. Benguet prope Baguio, Martio florifera fructiferaque (5925 *Elmer*).

Obs. Maesae Hernscheimianae Warb., satis accedit, sed foliorum forma lineisque nec non inflorentiis haud e ramulis abbreviatis prodeuntibus differt.

ARDISIA Swartz.

Ardisia Whitfordii Mez sp. nov.

Frutex foliis late lanceolatis, apice optime acutissimeque acuminatis, integerrimis, glandulis marginalibus magnis albuminiferis destitutis; inflorescentiis in ramulorum specialium apice foliis comatim pseudover-

ticillatis suffultis, multifloris; pedicellis (fructiferis) usque ad 17 mm. longis; sepalis liberis, margine dense papilloso-fimbriatis, multipunctatis.

Frutex usque ad 5-metralis (ex cl. *Whitford*!) ramulis gracilibus, brunneis, glabris. Folia (non nisi comae infra inflorescentiam cognita) petiolis ± 12 mm. longis, basi bene pulvinatis stipitata, ± 0.2 m. longa et 43 mm. lata, chartacea, glaberrima, sicca glauco-viridia subtus pallidiora, basi sensim acutissima, utrinque dense prominulo-reticulata, punctis prominentibus viridibus dissitis aucta. Inflorescentia fructifera tantum cognita absque dubio multiflora, pyramidata, folia superans, 2-pinnatim panniculata; ramulis patentibus, ad apicem flores multos dense racemosos gerentibus. Sepala acuta. Fructus (num siccus?) paullo depresse globosus, alutaceus, glaber laevisque, ± 10 mm. diam. metiens.

Luzon, prov. Tayabas, Septembri fructifera (772 *Whitford*).

Obs. Omnibus notis *Ardisiae Perrottetianae* A. DC., maxime affinis videtur, foliorum forma tamen abunde distincta.

Ardisia Copelandii Mez sp. nov.

Arbor ramulis novellis glaberrimis; foliis glabris, integerrimis, glandulis marginalibus destitutis; inflorescentiis e foliorum normalium axillis provenientibus, 2-pinnatim panniculatis, ramulis flores subumbellatos gerentibus; pedicellis longissimis; sepalis per anthesin apertis, glabris, subtriangularibus, punctatis; petalis valde tegentibus, punctatis, acuminatis; filamentis subnullis; antheris maximis, triangularibus, sensim acutis, dorso in parte superiore punctatis.

Arbor 10-metralis (ex cl. *Copeland*!) ramulis crassis. Folia petiolis 13 mm. longis, latissimis et a lamina parum distinctis, haud canaliculatis stipitata, anguste elliptica, basi brevius apice longius acuminata, ± 0.2 m. longa et 50 mm. lata, coriacea, praeter costas utrinque minute lineatimque prominulas laevia, punctulis prominulis crebris aequaliter consita. Inflorescentiae suberecto-erectae, submultiflorae, laxiusculae, rotundatae, glaberrimae; axibus subangulatis; bracteis deciduis; ramulis suberectis flores inferiores racemosos superiores plurimos bene umbellatos gerentibus. Flores pedicellis longissimis (usque ad 40 mm.) magnitudineque (ante anthesin 9 mm.) quam maxime insignes, glaberrimi; sepalis fere ad $\frac{1}{3}$ connatis, lobis e late triangulari apice rotundatis; petalis crassis cereis, basi brevissime connatis, apice longe obliqueque acuminatis, punctis multis ad lineam mediam paullo elongatis, crassis pictis; antheris quam petala paullo brevioribus, percrassis, apice fere caudatim acutissimis; ovario glaberrimo, ovoideo, sensim in stylum apicem usque attenuatum, ut videtur constantur quam petala paullo breviorem transeunte; placenta multiovulata.

Mindanao, in districtu Davao prope Todaya, alt. 1,200 m., mense Aprili florens (1242 *Copeland*).

Obs. Reliquis *Ardisiis* philippinensibus ex *Akosmos* subgenere sat dissimilis, *A. tenerae* Mez e China meridionale proxima.

Ardisia racemoso-panniculata Mez sp. nov.

Frutex ramulis novellis minute lepidotulis; foliis glabris, integerrimis, glandulis marginalibus destitutis, apice eleganter angusteque acuminatis; inflorescentiis e foliorum normalium axillis provenientibus, 2-pinnatim ample panniculatis e ramulis insigniter racemose florigeris compositis, quam folia haud multo brevioribus; pedicellis ± 5 mm. longis; sepalis per anthesin infima basi tantum minuteque tegentibus fere apertis, subtriangularibus, margine glanduloso-ciliatis, perpauce punctatis; petalis valde tegentibus, vix punctatis, apice valde asymmetrice anguste rotundatis; filamentis brevissimis; antheris triangularibus, dorso obscure punctatis; placenta multiovulata.

Frutex squarrosus, 4-metralis (ex cl. *Copeland*!) ramulis gracilibus, teretibus, alutaceis. Folia petiolis gracilibus ± 15 mm. longis, apice in laminas persensim transeuntibus, supra fere planis stipitata, anguste elliptica, utrinque subaequaliter acuminata, ± 0.15 m. longa et 45 mm. lata, chartacea, utrinque laxe prominulo-reticulata et nervis utrinque binis marginalibus e basi ascendentibus maxime insignia, punctis maculisve manifestioribus destituta. Inflorescentiae submultiflorae, suberectae, ± 0.1 m. longae, glabrae; ramulis patentibus vel refractis usque ad 40 mm. longis mihi visis, flores densiuscule sed optime racemosos gerentibus; axibus subangulatis; bracteis deciduis. Flores fragrantes (ex cl. collectore!) ad 7 mm. diam. metientes; sepalis ad $\frac{1}{5}$ connatis ex ovato acutis; petalis basi breviter coalitis, lobis ovato-ellipticis; antheris quam petala bene brevioribus magnis crassisque; filamentis 5-plo brevioribus sed manifestis, glaberrimis stipitatis; ovario glaberrimo, subgloboso stylo sensim apicem usque attenuato, quam petala constanter breviore; stigmate punctiformi.

Mindanao, in districtu Davao ad montem Apo, alt. 1,700 m., mense Aprili florifera (1187 *Copeland*).

Obs. Species singularis, vix non *Ardisiae laevigatae* Bl. accedit.

Ardisia Elmeri Mez sp. nov.

Frutex ramulis glaberrimis; foliis glabris, integerrimis, glandulis marginalibus majoribus destitutis, apice brevissime lateque acuminatis vel rotundatis; inflorescentiis e foliorum reductorum deciduorumque axillis provenientibus, ample 2-pinnatim panniculatis, e ramulis insigniter racemose florigeris compositis, folia normalia subaequantibus; pedicellis usque ad 3 mm. longis; sepalis fere liberis, per anthesin subapertis, subtriangularibus, margine glanduloso-ciliatis, perpauce punctulatis; petalis valde tegentibus, vix punctatis, apice asymmetrice latiuscule rotundatis; filamentis brevibus; antheris ovato-triangularibus, dorso obscure punctatis; placenta multiovulata.

Frutex fere 3-metralis (ex cl. *Elmer*!) ramulis validiusculis, teretibus, alutaceis. Folia petiolis usque ad 10 mm. longis mihi visis, crassiusculis, supra manifeste caniculatis stipitata, oblonga, basin versus sensim sub-

cuneatimque angustata, ± 0.15 m. longa et 45 mm. lata, subcoriacea, utrinque laxe prominulo-reticulata, secus marginem punctis prominulis nonnullis parvis aucta. Inflorescentiae submultiflorae, suberectae, usque ad 0.14 m. longae mihi visae, glabrae; ramulis suberecto-patentibus, usque ad 50 mm. longis, flores multos densiuscule optimeque racemosos, nutantes gerentibus; axibus compressiusculis; bracteis deciduis. Flores decidui, albique (ex cl. collectore!) ante anthesin 3.5 mm. longi; petalis basi breviter coalitis, lobis ellipticis; filamentis quam antherae sub 4-plo brevioribus, glabris; antheris apice breviter acutis; ovario glabro, subgloboso, stylo crassiusculo apicem versus sensim attenuato, stigmate obtuso.

LUZON, prov. Benguet ad rivulos pinetorum, Junio florifera (6493 *Elmer*).

Obs. Et praecedenti satis affinis et nonnullis momentis *Ardisiam sumatranam* Miq. animo revocat.

AMBLYANTHOPSIS Mez.

Amblyanthopsis philippinensis Mez sp. nov.

Foliis toto margine crenatis, late ellipticis; inflorescentiis tenerrimis, fragillimisque, panniculatis; sepalis hyalinis, ad $\frac{1}{3}$ connatis, lobis ex ovato acutis, glabris, petalis fere medium usque coalitis; filamentis antherarum longitudine.

Frutex 2-metralis (ex cl. *Merrill*!) ramulis percrassis squarrosisque, glaberrimis. Folia (forma illa *Ardisiae serratae* Pers. animo revocantia) petiolis usque ad 35 mm. longis, basin versus subclavatim incrassatis, supra inciso-canaliculatis stipitata, utrinque acuminata, usque ad 0.22 m. longa et 85 mm. lata mihi visa, subcoriacea, glaberrima, utrinque dense prominenti-reticulata, punctis magnis multisque atris insignia. Inflorescentiae confractae tantum valdeque mancae mihi ante oculos albae, 0.1–0.15 m. longae (ex cl. *Merrill*!) glaberrimae; pedicellis ± 5 mm. longis. Flores rubri (ex cl. collectore!) minuti vix ultra 3.5 mm. diam. metientes; sepalis teneris, glaberrimis, punctis multis magnisque pallidis, prominentibus conspersis; petalorum lobis per anthesin optime patentibus, ex elliptico apice paullo asymmetrice rotundatis, aeque ad sepala dense punctatis, tenerrimis; filamentis crassis, stipitiformibus; antheris pallidis, capituliformibus, apice rotundatis, dorso bene punctatis; ovario in stirpe nostra stipitiformi (an sterili?) glabro; stigmate discoideo.

LUZON, prov. Bataan ad monte Mariveles, mense Augusto florifera (3881 *Merrill*).

Obs. Species quam maxime notabilis, generis adhuc ex India, Malaya tantum cogniti unica philippinensis, habitu valde peculiari.

DISCOCALYX Mez.

Discocalyx Merrillii Mez sp. nov.

Foliis anguste obovatis, integerrimis; inflorescentiis e ramulis specialibus, basi longe sterilibus apice fertilibus et hic inflorescentias paucifloras simplices racemosas vel pauperrime 2-pinnatim compositas proferentibus

nec non inflorescentiarum decisarum cicatricibus tessellatis prodeuntibus; floribus dioicis, regula 5-meris; sepalis alte connatis, margine nudis.

Frutex (ex cll. *Barnes*! et *Whitford*!) ramulis crassis, apicem usque glaberrimis, alutaceis. Folia petiolis brevibus crassisque vix ultra 10 mm. longis, supra canaliculatis, mox corticoso-rugosis stipitata, ± 0.18 m. longa et 53 mm. lata, basi persensim cuneatimque acuta, apice breviter lateque acuminata vel rarius late acuta, coriacea, glaberrima, utrinque costulata et laxe saepiusque obscure prominulo-reticulata, sicca glauco-viridia, opaca. Inflorescentiae pedunculis specialibus compressis, usque ad 80 mm. longis mihi visis sæpius brevioribus, apice gemmis terminatis stipitatae ipsae vix ultra 35 mm. longae, glaberrimae; bracteis deciduis minutis; pedicellis gracilibus, usque ad 4 mm. longis. Flores rubri (ex cl. *Merrill*!) 3 mm. diam. metientes, ♂ tantum mihi cogniti; sepalis medium usque vel paullo ultra connatis, pallido-punctatis, lobis triangularibus, integerrimis vel paucicrenatis; petalis ad ⅓ longit. connatis, lobis patentibus, ellipticis, rotundatis, pauce pallido-punctatis, haud papillosis; antheris dorso dense magnipunctatis, apice rotundatis emarginellisque; ovario glaberrimo, in floribus ♂ stipitiformi; stigmate discoideo.

Luzon, monte Mariveles ad flumen Lamao, Januario-Martio florifera (139 *Barnes*); (213 *Whitford*); (1348 *Borden*); (3745 *Merrill*).

Obs. *Discocalyci cybianthoidi* Mez affinis species.

RAPANEA Aubl.

Rapanea avenis (Bl.) Mez in Engl. Pflanzenreich **9** (1902) 357.

Luzon, prov. Benguet ad monte Santo Tomas (5811, 6539 *Elmer*).

Java, Celebes.

A LIST OF KNOWN PHILIPPINE FUNGI.

By P. L. RICKER.
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In 1904 the author commenced the study of a small collection of Philippine fungi made by Elmer D. Merrill, mostly during the preceding year, consisting of about 60 numbers, of which nearly two-thirds belonged to the *Polyporales*. As a preliminary to the identification of anything more than the best known species, a card catalogue of the species already described from or credited to the Philippines, and a bibliography of the mycological literature of the Islands was made. Thus far fourteen articles have been found dealing wholly or in part with Philippine fungi, and from these articles there has been compiled a list of about 150 species described or reported from the Philippines. The citations for the original publications of all binomials have been carefully verified and corrected, as many of the references in Saccardo's Sylloge, Strenz' Nomenclator, and in most of the papers included in the appended bibliography can not be depended upon and they are especially unreliable in the citations for combinations.

This list should not be regarded as a critical revision of the species already known from the Philippines, but only as an attempt to bring together all references to species credited to the Archipelago by various authors, as a basis for further critical studies.[1] I am indebted to Dr. W. A. Murrill, of the New York Botanical Garden, for assistance in the identification of some of the more difficult species of the *Polyporales*.

[1] One paper on Philippine fungi, overlooked by Mr. Ricker, was discovered just as the present article was going to press: Berkeley, Contributions to the Botany of H. M. S. *Challenger*, XXXVIII, Enumeration of the Fungi collected during the Expedition of H. M. S. *Challenger*, 1874–75, *Journ. Linn. Soc. Bot.* 16 (1878), 38–54. On pages 45 to 48 thirty-five species and varieties of fungi are enumerated under the heading "Camiguin, Malanipa, and Malamon (Philippines)." Two of these, *Lenzites applanata* Fr., and *Hirneola rufa* Berk., are from Little Ké Island according to the list, and should have been enumerated on page 45 under Little Ké, this island not being one of the Philippine group. A list of the Philippine species enumerated by Berkeley is appended to the present paper and the title has been inserted in the bibliography.—E. D. M.

Many of the species originally described from the Philippines by Berkeley and Montagne are at present imperfectly known, and an examination of the material in several European herbaria will be necessary before all the specimens still on hand can be satisfactorily identified. It is also probable that some of the species previously reported from the Philippines and enumerated here as reported will be found to have been erroneously identified.

The types of all the species here described have been deposited in the United States National Herbarium. Duplicates are in the herbarium of the author and in the herbarium of the Bureau of Science.

ASCOMYCETÆ.

PEZIZALES.

PEZIZA Dill.

Peziza sp. P. Henn. Hedw. **32** (1893) 226, with description.
MINDANAO, near Davao (*Warburg*) fide Henn. l. c.

PILOCRATERA P. Henn.

Pilocratera hindsii (Berk.) P. Henn. Hedw. **32** (1893) 225. *Peziza hindsii* Berk. Lond. Journ. Bot. 1 (1842) 456. *pl. 15.*
MINDANAO, near Davao (*Warburg*) fide Henn. l. c.

Pilocratera tricholoma (Mont.) P. Henn. Engl. Bot. Jahrb. **17** (1893) 9. *Peziza tricholoma* Mont. Ann. Sci. Nat. II. **2** (1834) 77. *pl. 4. fig. 2.*
MINDANAO, near Davao (*Warburg*) fide P. Henn. Hedw. **32**: 226.

ASPERGILLALES.

ASPERGILLUS Micheli.

Aspergillus delacroixii Sacc. & Syd. Syll. Fung. **14** (1899) 1044. *A. olivaceus* Delacr. Bull. Soc. Myc. Fr. **13** (1897) 118; non Preuss. 1852.
LUZON, Province of Batangas, Lipa (3616 *Merrill*) August, 1902. On fruit of *Theobroma cacao* L.

PERISPORIALES.

PARODIELLA Speg.

Parodiella perisporioides (B. & C.) Speg. Anal. Soc. Cient. Arg. **9** (1880) 178. *Dothidea perisporioides* B. & C. Grevillea **4** (1876) 103.
LUZON, Province of Bataan, Lamao (3553 *Merrill*) October, 1903. On leaves of *Desmodium triflorum.*

HYPOCREALES.

EPICHLOË Fries.

Epichloë warburgiana Magn. Atti Congr. Bot. Internat. **1892** (1893) 157. *pl. 8.*
LUZON, near Cabongenam (*Warburg*) fide Henn. Hedw. **32**: 223.

HYPOCREA Fries.

Hypocrea peltata (Jungh.) Sacc. Syll. Fung. 2 (1883) 536. *Sphaeria peltata* Jungh. Ann. Sci. Nat. II. 16 (1841) 310.

PHILIPPINES (2028 *Cuming*) 1836–40, fide Berk. Lond. Journ. Bot. 1 (1842) 155. *pl. 7. f. 7.*

NECTRIA Fries.

Nectria manilensis P. Henn. in Warb. Mons. 1 (1900) 25. *pl. 1. f. 14.*

LUZON, Manila (*Wichara*) May 20, 1861, fide Henn. l. c. On dead bark.

USTILAGINOIDEA Bref.

Ustilaginoidea (?) ochracea P. Henn. in Warb. Mons. 1 (1900) 26. *pl. 1. fig. 16.*

MINDANAO (*Warburg*) fide Henn. l. c. On *Eriochloa.*

Ustilaginoidea virens (Cke.) Tak. Bot. Mag. Tokyo 10 (1896) 19. *pl. 2. f. 1–8.* *Ustilago virens* Cke. Grev. 7 (1878) 15. *Tilletia oryzae* Pat. Bull. Soc. Myc. Fr. 13 (1897) 124. *pl. 10. f. 2.* *Ustilaginoidea oryzae* Bref. Untersuch. 12 (1895) 194. *pl. 11. f. 22–29.*

LUZON, Manila (*Loher*). In ovaries of *Oryza sativa,* fide Mass. Kew Bull. (1899) 176.

DITHIDEALES.

AUERSWALDIA Sacc.

Auerswaldia examinans (Berk.) Sacc. Syll. Fung. 2 (1883) 626. *Sphaeria examinans* Berk. Lond. Journ. Bot. 1 (1842) 156.

PHILIPPINES (2163 *Cuming*) fide Berk. l. c.

EUTYPA Tul.

Eutypa bambusina Penz. & Sacc. Malpighia 11 (1897) 501; Ic. Fung. Jav. *pl. 23. f. 1.* *E. barbosae* v. Hohnel in Rehm. Ascom. No. 1376.

CULION (3606 *Merrill*) December, 1902. On dead bamboo.

HYPOPTERIS Berk.

Hypopteris apiospora (Dur. & Mont.) Berk. in Hook. Journ. Bot. & Kew Miscel. 6 (1854) 227. *Sphaeria apiospora* Dur. & Mont. Fl. Alg. 1 (1849) 482. *pl. 25. f. 1.* *Apiospora montagnei* Sacc. Atti Soc. Venet.-Trent. Padova, 4 (1875) 9. *Detonina apiospora* Kuntze Rev. Gen. Pl. 2 (1891) 851.

LUZON, Province of Bataan, Lamao (3533 *Merrill*) October, 1903. On dead bamboo.

The sporidia in *Merrill's* specimen measure 8.5–12 by 22–26 μ and the asci 19–23 by 98–123 μ, differing but slightly from the measurements given in Sacc. Syll., and approaching the specimens mentioned in Ellis, N. A. Pyr. 311, from Louisiana.

The generic name used by most authors for this and related species is *Apiospora* Sacc. Soc. Veneto-Trent. Padova. 4 (1875) 9, which is untenable on account of *Apiosporium* Kunze, 1817. Saccardo uses the name *Apiospora montagnei,* and the original publication would indicate that it is a nom. nov. for *Sphaeria apiospora* D. & M. There is a *Sphaeria montagnei* Fr. Ann. Sci. Nat. 1 (1834) 337. *pl. 11. f. 3,* and I have a suspicion that the names have been confused. Judging from the descriptions and plates accompanying both original descriptions, and in Dur. & Mont. Fl. Alg., the two species are not congeneric.

PHYLLACHORA Nitschke.

Phyllachora merrilli Ricker sp. nov.

Stromata gregarious, confluent, epiphyllous, convex, black and shining, up to 6 mm. in diameter, seated on yellowish spots; asci cylindrical-clavate, 14–20 by 56–65 μ, short stipitate, 8-spored; sporidia obliquely uniseriate, or usually partially biseriate or overlapping, elliptical, uniseptate, at first hyaline, becoming brownish, 4–6 by 8–12 μ; paraphyses few, filiform.

MINDORO, Bulalacao (3579 *Merrill*) April, 1903. (Type.) On leaves of *Ficus* sp.

Although there are a large number of *Phyllachoras* described on *Ficus*, this species seems to differ from all of them. In asci and spore measurements it approaches closely *P. infectoria* Cke., and *P. karnbachii* P. Henn. The latter species has asci 10–15 by 50 by 62 μ and sporidia 7–8 by 9–12 μ, which are lighter colored when mature, and although seemingly different from the former the description is too incomplete to say positively whether they are the same or not, but it is improbable.

SPHAERIALES.

DALDINIA de Not.

Daldinia concentrica (Bolt.) Ces. & de Not. Comm. Critt. Ital. 1 (1863) 198. *Sphaeria concentrica* Bolt. Hist. Fung. Halifax 3 (1791) 180. *pl. 180.*

LUZON, Province of Tarlac (3595 *Merrill*) November, 1903. On charcoal of recent fire.

Daldinia vernicosa (Schw.) Ces. & de Not. l. c. 198. *Sphaeria vernicosa* Schw. Journ. Acad. Sci. Philadel. 5 (1825) 341.

LUZON, Manila fide Klotz. in Nov. Act. Acad. Nat. Cur. 19 (1843) Suppl. 1: 241. *Hemisphaeria concentrica obovata substipitata* Nees.

HYPOXYLON Bulliard.

Hypoxylon annulatum depressum Welw. & Cur. Trans. Linn. Soc. Bot. 26 (1868) 283.

CULION (3604 *Merrill*) December, 1902. On dead branches.

Hypoxylon rubiginosum (Pers.) Fr. Summ. Veg. Scand. (1846) 384. *Sphaeria rubiginosa* Pers. Syn. (1801) 11.

LUZON, Province of Tarlac (3596 *Merrill*) November, 1903.

KRETSCHMERIA Fries.

Kretschmeria coenopus (Fr.) Sacc. Syll. Fung. 2 (1883) XXIX. *Sphaeria coenopus* Fr. Linnaea 5 (1830) 542. *Hypoxylon cocnopus* Mont. Ann. Sci. Nat. 13 (1840) 356.

PHILIPPINES (2163 *Cuming*) fide Berk. Lond. Journ. Bot. 3: 194.

NUMMULARIA Tul.

Nummularia philippinensis Ricker sp. nov.

Stroma at first covered by the epidermis, but soon erumpent and free, convex, oblong-ovate, black, 1.5–2.5 by 4–6 cm.; perithecia cylindrical, black, closely packed, about 1.5 mm. high; asci cylindrical, 12–15 by 170–185 μ; sporidia uniseriate, elliptical-oblong, nearly hyaline at first, soon opaque, 11–14 by 25–28 μ.

LUZON, Province of Bataan, Lamao (3537 *Merrill*) October, 1903 (Type). On prostrate log.

This species externally resembles *Nummularia bulliardi* Tul., which however has asci 10 by 100–120 μ and sporidia 9–10 by 11–14 μ.

PORONIA Willd.

Poronia pileiformis (Berk.) Fr. Nov. Act. Reg. Soc. Sci. Ups. 1 (1855) 129. *Sphaeria pileiformis* Berk. Lond. Journ. Bot. 1 (1842) 155. *pl. 7. f. 6.*

PHILIPPINES (1980 *Cuming*) fide Berk. l. c.

SPHAERIA Auct.

Sphaeria micraspis Berk. Lond. Journ. Bot. 1 (1842) 156. *pl. 7. f. 9.*

PHILIPPINES (2164 *Cuming*) fide Berk. l. c.

This is probably not a fungus but a lichen. Berkeley opp. cit. 457 refers it to *Verrucaria nitens* Fée.

TREMATOSPHAERIA Fuck.

Trematosphaeria palaquii Ricker sp. nov.

Perithecia gregarious or scattered, slightly immersed, subcarbonaceous, black, ovate-globose, 1–2 mm. diam.; ostiolum usually obtusely conical, soon deciduous, paraphyses filiform, numerous, larger than the asci; asci clavate or cylindrical, 14–15 by 132–141 μ; sporidia uniseriate, ovate-oblong, 5-spored, at first hyaline then becoming brown, 3-septate, not constricted at septum, 8–12 by 17–20 μ.

LUZON, Province of Tarlac (3597 *Merrill*) November, 1903. (Type.) On bark of *Palaquium latifolium*.

XYLARIA Hill.

Xylara fulvo-lanata (Berk.) Sacc. Syll. Fung. 1 (1882) 346. *Sphaeria fulvo-lanata* Berk. Lond. Journ. Bot. 1 (1842) 154.

PHILIPPINES (2218 *Cuming*) fide Berk. l. c.

Xylaria hypoxylon (Linn.) Grev. Fl. Edin. (1824) 355. *Clavaria hypoxylon* Linn. Sp. Pl. ed. 1, 2 (1753) 1182.

LUZON, Province of Bataan, Lamao (3530 *Merrill*) October, 1903. On prostrate logs.

Xylaria luzonensis P. Henn. Hedw. 32 (1893) 225. *pl. 8. f. 3.*

LUZON (*Warburg*). On *Afzelia bijuga* A. Gray, fide Henn. l. c.

Xylaria polymorpha (Pers.) Grev. Fl. Edin. (1824) 355. *Sphaeria polymorpha* Pers. Comm. Fung. Clav. (1787) 17.

LUZON, Province of Bataan, Lamao (3534 *Merrill*) October, 1903. On dead trees. MINDANAO, near Davao (*Warburg*) fide Henn. Hedw. 32: 224.

BASIDIOMYCETÆ.

USTALIGINALES.

CINTRACTIA Cornu.

Cintractia axicola (Berk.) Cornu. Ann. Sci. Nat. VI. 15 (1883) 279. *Ustilago axicola* Berk. Ann. Nat. Hist. II. 9 (1852) 200.

MINDANAO, Davao (*Warburg*) fide Henn. in Warburg; Mons. 1: 2. LUZON, Manila (*Warburg*) Henn. l. c.

UREDINALES.

AECIDIUM Pers.

Aecidium luzoniense P. Henn. in Warb. Mons. 1 (1900) 2.
LUZON, Province of Rizal, Montalban (*Warburg*). On *Phyllanthus*.

HEMILEIA Berk. & Broome.

Hemileia vastatrix Berk. & Broome Gard. Chron. (1869) 1157; De Bérard Rapport sur un maladie des Caféiers aux îles Philippines, Bull. Minist. Agr. (Paris) 8 (1893) 1008–1024; Delacroix Les maladies et les ennemis des Caféiers (1900) 42; Massee, Kew. Bull. (1906) 38.
PHILIPPINES, fide De Bérard, Delacroix and Massee ll. cc. On *Coffea arabica* and *C. liberica*. For bibliography see Delacroix l. c. 14.

PUCCINIA Pers.

Puccinia thwaitesii Berk. Journ. Linn. Soc. Bot. 14 (1873) 19.
LUZON, Province of Bataan, Lamao (3552 *Merrill*) October, 1903. On *Justicia gendarussa*.

UREDO Pers.

Uredo davaoensis Syd. Ann. Myc. 4 (1906) 30.
MINDANAO, Davao, (600 *Copeland*) March 21, 1904. On leaves of *Cyanotis*.

Uredo hygrophilae Syd. l. c. 31.
MINDANAO, Davao (357 *Copeland*) March 7, 1904. On leaves of *Hygrophila salicifolia*.

Uredo philippinensis Syd. l. c. 32.
MINDANAO, Davao (570 *Copeland*) March 19, 1904. On *Cyperus polystachyus*.

Uredo wedeliae-biflorae Syd. l. c. 32.
MINDANAO, District of Zamboanga, San Ramon (759 *Copeland*) May 17, 1904. On *Wedelia biflora*.

UROMYCES Link.

Uromyces hewittiae Syd. Ann. Myc. 4 (1906) 30.
MINDANAO, District of Cotabato (1343, 1344 *Copeland*) May 8, 1904. On leaves of *Hewittia bicolor*.

Uromyces deeringiae Syd. Ann. Myc. 1 (1903) 324.
LUZON, fide Sydow, l. c., on *Deeringia*.

AURICULARIALES.

AURICULA.

Auricula auricula (Linn.) Underw. Mem. Torr. Bot. Club. 12 (1902) 15.
Tremella auricula Linn. Sp. Pl. 2 (1753) 1157.
LUZON, Province of Bataan, Lamao (3509 *Merrill*) October, 1903.

THELEPHORALES.

CLADODERRIS Pers.

Cladoderris blumei Lev. Ann. Sci. Nat. III. 2 (1844) 213.
PHILIPPINES, on trunks (Herb. Delessert) fide Lev. l. c.

Cladoderris crassa (Klotz.) Fr. Kongl. Vet.-Akad. Handl. Stock. 1848^{i} (1849) 142. *Actinostroma crassum* Klotz. Nov. Act. Acad. Nat. Cur. 19 (1843) Suppl. 237.
LUZON, Manila, on old trunks, fide Klotz. l. c.

Cladoderris dendritica (Pers.) Berk. Lond. Journ. Bot. 1 (1842) 152. *Thelephora dendritica* Pers. Freyc. Voy. (1827) 176. *pl. 1. f. 4.*

PHILIPPINES, fide Berk. l. c. Three forms are recognized; f. *junior* (1988 *Cuming*); f. *adulta* (1990 *Cuming*); f. *hymenio scabro* (2036 *Cuming*).

Cladoderris infundibuliformis (Klotz.) Fr. Kongl. Vet.-Akad. Handl. Stock. 1848[1] (1849) 141. *Actinostroma infundibuliforme* Klotz. Nov. Act. Acad. Nat. Cur. 19 (1843) Suppl. 1: 237.

LUZON, Manila, on old trunks, fide Klotz. l. c.

CORTICIUM Pers.

Corticium hydnatium Berk. in Lond. Journ. Bot. 1 (1842) 153.

PHILIPPINES (2187 *Cuming*) fide Berk. l. c.

RHIPIDONEMA Matt.

Rhipidonema erectum (Berk.) Sacc. Syll. Fung. 6 (1888) 689. *Dichonema erectum* Berk. Lond. Journ. Bot. 1 (1842) 157. *pl. 7 f. 11.*

PHILIPPINES (2234 *Cuming*) fide Berk. l. c.

STEREUM Pers.

Stereum adustum Lév. Ann. Sci. Nat. IV. 2 (1844) 213. *Thelephora adusta* Lév. Gaud-Beaupr. Voy. Bonite 1 (1846) 192. *pl. 139. f. 1.*

LUZON, Manila, on fallen branches (*Gaudichaud*), Herb. Mus. Paris fide Lév. l. c.

Stereum cinereo-badium Fr. Epicr. 1 (1838) 547; Nov. Act. Acad. Nat. Cur. 19 (1843) Suppl. 1: 238. *pl. 5. f. 3. Thelephora badia* Hook; Kth. Syn. Pl. Aeq. 1 (1822) 12. *T. moluccana* Pers.; Freyc. Voy. (1827) 175.

LUZON, Manila, on trunks of trees, fide Klotz. l. c.

The above synonomy is given by Fries, but it can not be vouched for.

Stereum illudens Berk. Lond. Journ. Bot. 4 (1845) 59.

CULION, on fallen logs (3603 *Merrill*) December, 1902.

Stereum lobatum (Kze.) Fr. Epicr. 1 (1838) 547. *Thelephora lobata* Kze. Linnaea 5 (1830) 527.

MINDORO, Baco River (3580 *Merrill*) April, 1903. MINDANAO, fide Henn. in Warb. Mons. 1: 6. LUZON, Province of Pampanga, Mount Arayat, fide Henn. l. c.

Stereum luzoniense Ricker sp. nov.

Subresupinate, effuse or elongated and confluent; pileus suborbicular, membranaceous-coriaceous, strigose-hirsute, fuscous, somewhat zonate, 0.5 to 1 cm. broad; hymenium glabrous, smooth, cinereous; spores globose, hyaline, 2.8 to 3.5 μ in diameter.

LUZON, Province of Bataan, Mount Mariveles (3531 *Merrill*) October, 1903. On prostrate logs at the summit of the mountain at about 1,400 m.

Resembles *Stereum complicatum* Fr., but differs in color of pileus and hymemium, which is lighter and seldom more than softly pubescent.

Stereum nitidulum Berk. Lond. Journ. Bot. 2 (1843) 638.

NEGROS (*Usteri*) fide Henn. in Usteri Beitr. (1905) 136.

Stereum perlatum Berk. Lond. Journ. Bot. 1 (1842) 153.

PHILIPPINES (2034 *Cuming*) fide Berk. l. c.

Massee in his monograph considers this a synonym of *Stereum lobatum* (Kze.) Fr.

Stereum spectabile Klotz. Nov. Act. Acad. Nat. Cur. **19** (1843) Suppl. **1**: 238. *pl. 5. f. 2.*

LUZON, Manila, on tree trunks, fide Klotz. l. c.

THELEPHORA Ehrh.

Thelephora diamesa Ricker sp. nov.

Pileus infundibuliform, glabrous, coriaceous, margin lobed, 2 to 4 cm. broad, tapering rather abruptly to one-third or one-half its length, forming a hollow stipe 2.5 cm. long (whole plant 4 to 7 cm. high), lemon yellow when fresh, cream-colored when dry; hymenium glabrous smooth, orange yellow when fresh, tawny yellow when dry; spores globose, hyaline, 2.5 to 3 μ in diameter.

LUZON, Province of Bataan, Lamao (3510 *Merrill*) October, 1903. Damp soil in forests (rainy season).

The note with the speciniens says "lemon to orange yellow." It may be so throughout, but as when dry the hymenium is darker than the pileus I have placed the colors as above and await further collections or notes to verify or correct the color.

Apparently related to *Thelephora lamellata* B. & C., and *T. caperata* Berk. & Mont., but is distinguished from both by its glabrous pileus.

Thelephora paradoxa Lév. Ann. Sci. Nat. IV. **2** (1844) 206; Gaud.-Beaupre Voy. Bonite, **1** (1846) 190. *pl. 139. f. 4.*

LUZON, Manila, on trunks of trees (Herb. Mus. Paris) fide Lév. l. c.

CLAVARIALES.

CLAVARIA Vaill.

Clavaria surculus Berk. Lond. Journ. Bot. **1** (1842) 154. *pl. 6. f. 5.*

PHILIPPINES (2042 *Cuming*) fide Berk. l. c.

LACHNOCLADIUM Lév.

Lachnocladium sp.

MINDANAO, Davao, Mount Dagatpan (*Warburg*) fide Henn. Hedw. **32** (1893) 218, with description.

HYDNALES.

HYDNUM Linn.

Hydnum webii Berk. Lond. Journ. Bot. **3** (1844) 190.

PHILIPPINES (2172 *Cuming*) fide Berk. l. c.

IRPEX Fries.

Irpex flavus Klotz. Linnaea **8** (1833) 488.

LUZON, Province of Isabela (*Warburg*) fide Henn. Hedw. **32**: 218.

POLYPORALES.

CORIOLUS Quél.

Coriolus versicolor (L.) Murr. *Boletus versicolor* L. Sp. Pl. (1753) 1176. *Polystictus versicolor* Fr. Nov. Act. Reg. Soc. Sci. Ups. IV. **1** (1855) 86.

LUZON (*Warburg*) fide Henn. Hedw. **32**: 220 and in Warb. Mons. **1**: 11. NEGROS (*Usteri*) fide Henn. in Usteri Beitr. (1905) 136.

DEADALIA Pers.[2]

Daedalia elegans Spreng. Vet. Akad. Handl. (1820) 51. *Daedalia deplanata* Fr. Linnaea **5** (1830) 513. *Lenzites applanata* Fr. Epicr. (1838) 404.
LUZON, Manila (*Loher*) fide Massee in Kew Bull. (1899) 176. NEGROS (*Usteri*) fide Henn. in Usteri Beitr. (1905) 136.

Daedalea inconcinna Berk. Lond. Journ. Bot. **1** (1847) 151.
PHILIPPINES (2021 *Cuming*) fide Berk. l. c.

Daedalia repanda (Fr.) Pers.; Sagra Hist. Pol. Nat. Cuba **9** (1845) 232; Pers. opp. cit. **12** (1855) *pl. 14. f. 5. Lenzites repanda* Fr. Epicr. (1838) 404.
CULION (3574 *Merrill*) December, 1902, on fallen logs. NEGROS (*Usteri*) fide Henn. in Usteri Beitr. (1905) 136. LUZON, Province of Tayabas (*Warburg*) fide Henn. Hedw. **32**: 221.
This species is closely related to *Daedalia elegans* Spreng., and may be the same. Specimens from tropical and subtropical regions of both hemispheres indicate that both are extremely variable and with many intergrading forms.

Daedalea tenuis Berk. Lond. Journ. Bot. **1** (1842) 151.
PHILIPPINES (2137 *Cuming*) fide Berk. l. c.

ELFVINGIA Karst.

Elfvingia tornata (Pers.) Murr. Bull. Torr. Bot. Club. **30** (1903) 301. *Polyporus tornatus* Pers.; Gaud.-Beaupr. Voy. Freyc. (1827) 173. *Polyporus australis* Fr. Elench. 1 (1828) 108.
CULION (3572 *Merrill*) December 1902, on fallen logs. PHILIPPINES (2041 *Cuming*) fide Berk. Lond. Journ. Bot. **3**: 188. NEGROS (*Usteri*) fide Henn. in Usteri Beitr. (1905) 136.

[2] The replacing of the genus *Deadalia* by *Agaricus* by Dr. W. A. Murrill in Bull. Torr. Bot. Club. **32** (1905) 83, will hardly meet the approval of many mycologists. Neither is it in accord with the rules promulgated by the Botanical Club of the A. A. A. S., in Bull. Torr. Bot. Club. **31** (1904) 249, 261. Canon 15*c* requires a citation of nonbinomial literature, but there is no such citation in Linn. Gen. Pl. ed. 5 (1754), 492 under *Agaricus* Dill. The crediting of the genus *Agaricus* to Dillenius does not constitute a citation as it is not definite enough. It should refer to some work in particular. Besides this Canon 15*f* provides for the selection of the types of Linnean genera from the most common or officinal or European species as suggested by Linnaeus, Phil. Bot. (1751), 197. There are but few mycologists who will not agree to accept *Agaricus campestris* L., as the type of the genus *Agaricus*.
The next name used for this group of species was, according to Murrill, *Striglia* Adans. Fam. Pl. **2** (1763), 10, based on "Battar. *t. 38.*" This consists of *figures A–G and d.* The only one of these figures with its accompanying description that can be connected with a binomial contemporaneous with or earlier than Adanson is *fig. d, Agaricus pectunculi forma elegans* Batt., under which is given as a synonym *Agaricus parvus lamellatus pectunculi forma elegans Raii.* This name is given under *Agarico-fungus lamellis bifidis pulverulentis* Hall. Enum. Helv. 1 (1742) 58, which is in turn cited under *Agaricus alneus* Linn. Sp. Pl. **2** (1753) 1176. Therefore, the name *Striglia* Adans., under the above-cited rules, must replace the generic name *Schizophyllum* Fr., unless there is still an older valid name, in which case it would become a synonym.
Under the same rules *Daedalia quercina* (L.) Pers., would become the type of the genus *Dadalia* Prs. Syn. (1801) 499.

FAVOLUS Fries.[3]

Favolus apiarius (Pers.). *Hexagona apiaria* (Pers.) Fr. Epicr. (1838) 497. *Polyporus apiaria* Pers.; Feryc. Voy. (1827) 160. *pl. 2. f. 5.*

PHILIPPINES (1989 *Cuming*) fide Berk. Lond. Journ. Bot. **1**: 152. LUZON (*Loher*) fide Massee, Kew Bull. (1899) 176.

Favolus ciliatus (Klotz.). *Hexagona ciliata* Klotz. Nov. Act. Acad. Nat. Cur. **19** (1843) Suppl. 235. *pl. 5. f. 1.*

LUZON, Manila, on dead branches, fide Klotz. l. c.

Favolus rigidus (Berk.). *Hexagona rigida* Berk. Journ. Linn. Soc. Bot. **16** (1878) 54.

LUZON, Manila (*Loher*) fide Massee, Kew Bull. (1899) 176.

Favolus tenuis (Hook.) Murr. Bull. Torr. Bot. Club. **32** (1905) 100. *Boletus tenuis* Hook. in Kth. Syn. **1** (1822) 10. *Hexagona tenuis* Fr. Epicr. (1838) 498.

PHILIPPINES (1984 *Cuming*) fide Berk. Lond. Journ. Bot. **1**: 152.

Favolus wightii (Klotz.). *Polyporus wightii* Klotz. Linnaea **7** (1832) 200. *pl. 10. Hexagona wightii* Fr. Epicr. 1 (1838) 496.

LUZON, Manila, on trunks of trees, fide Lev. in Gaud.-Beaupr. Voy. **1**: 187; Province of Tarlac (3600 *Merrill*) November, 1903.

FOMES Fries.

Fomes amboinensis (Lam.) Cke. Grev. **14** (1885) 118. *Agaricus amboinensis* Lam. Encycl. **1** (1783) 51. *Polyporus amboinensis* Fr. Syst. Myc. **1** (1821) 354. (Icones: Rump. Herb. Amb. 11 *pl. 57. f. 1; Bisch. Handl. f. 3312.*)

PHILIPPINES (1985 *Cuming*) fide Berk. Lond. Journ. Bot. **1**: 147. MINDANAO (*Warburg*) fide Henn. Hedw. **32**: 219. LUZON, Province of Isabela (*Warburg*) fide Henn. l. c. NEGROS (*Usteri*) fide Henn. in Usteri Beitr. (1905) 136.

Fomes ochreo-laccatus (Mont.) Cke. Grev. **14** (1885) 18. *Polyporus ochreo-laccatus* Mont. Ann. Sci. Nat. II. **18** (1842) 241.

PHILIPPINES (1989 *Cuming*) in Herb. Delessert fide Mont. l. c.; (1979 *Cuming*) fide Berk. Lond. Journ. Bot. **3**: 188.

Fomes rimosus (Berk.) Cke. Grev. **14** (1885) 18. *Polyporus rimosus* Berk. Lond. Journ. Bot. **4** (1845) 54.

NEGROS (*Usteri*) fide Henn. in Usteri Beitr. (1905) 136.

Fomes senex (Nees & Mey.) Cke. Grev. **13** (1885) 118. *Polyporus senex* Nees & Mey. Ann. Sci. Nat. II **5** (1836) 70.

LUZON (*Loher*) fide Massee in Kew Bull. (1899) 176; Province of Isabela (*Warburg*) fide Henn. Hedw. **32**: 219.

Fomes tostus (Berk.) Cke. Grev. **14** (1885) 21. *Polyporus tostus* Berk. Lond. Journ. Bot. **3** (1844) 189.

PHILIPPINES (2031 *Cuming*) fide Berk. l. c.

GANODERMA Karst.

Ganoderma praetervisus Pat. Bull. Soc. Myc. Fr. **5** (1889) 78. *Polyporus auriscalpium* Mont. Ann. Sci. Nat. **1** (1834) 336. *pl. 5,* non Pers. *Fomes praetervisus* Sacc. Syllog. Fung. **9** (1891) 178.

MINDANAO (*Warburg*) fide Henn. Hedw. **32**: 219.

[3] *Favolus* and *Hexagona* were interchanged by early authors and the error has persisted in Sacc. Syll. Fung. They are here used in the original sense.

Ganoderma pseudoboletus (Jacq.) Murr. Bull. Torr. Bot. Club **29** (1902) 602. *Agaricus pseudoboletus* Jacq. Fl. Austr. 1 (1773) 26. *pl. 41. Boletus lucidus* Leys. Fl. Hal. (1783) 300. *Polyporus lucidus* Fr. Syst. Myc. 1 (1821) 353.
LUZON, Province of Rizal, Montalban (3611 *Merrill*) January, 1903; Province of Isabela (*Warburg*) fide Henn. Hedw. **32**: 219.

HAPLOPILUS Karst.

Haplopilus gilvus (Schw.) Murr. Bull. Torr. Bot. Club. **31** (1904) 418. *Polyporus gilvus* Schw. Syn. Fung. Car. (1818) 70.
LUZON, Province of Bataan, Lamao (3525 *Merrill*) October, 1903, on fallen logs. NEGROS (*Usteri*) fide Henn. in Usteri Beitr. (1905) 136.

Haplopilus licnoides (Mont.) Murr. Bull. Torr. Bot. Club. **31** (1904) 417. *Polyporus licnoides* Mont. Ann. Sci. Nat. **13** (1840) 204; Sagra Hist. Pol. y Nat. Cuba **12** (1855) *pl. 16. f. 2.*
CULION (3607 *Merrill*) December, 1902. On fallen logs.

HEXAGONA Fries.

Hexagona fibrillosa (Lév.). *Favolus fibrillosus* Lév. Ann. Sci. Nat. III. **2** (1844) 201.
LUZON, Manila, on trunks (Herb. Mus. Paris) fide Lév. l. c.

Hexagona philippinensis (Berk.) *Polyporus philippinensis* Berk. Lond. Journ. Bot. 1 (1872) 148. *Favolus philippinensis* Sacc. Syll. Fung. **6** (1888) 393.
PHILIPPINES (2038 *Cuming*) fide Berk. l. c.

Hexagona purpurea (Mass.) *Favolus purpureus* Mass. Kew Bull. (1899) 176.
LUZON (*Loher*) fide Massee l. c.

Hexagona hispidula (B. & C.) Murr. Bull. Torr. Bot. Club. **31** (1904) 329. *Favolus hispidulus* B. & C. Journ. Linn. Soc. Bot. **10** (1868) 32.
LUZON, Province of Bataan, Mount Mariveles (3537 *Merrill*) October, 1903. On dead trees at the summit of the mountain at about 1,400 m.

GLEOPHYLLUM Karst.

Gleophyllum abietinum (Bull.) Karst. Bidr. Finl. Nat. Och. Folk **37** (1882) 80. *Agaricus abietinus* Bull. Herb. France 4 (1789) 442. *pl. 442. Lenzites abietina* Fr. Epicr. (1838) 407.
PHILIPPINES (2032 *Cuming*) fide Berk. Lond. Journ. Bot. **1**: 147.

LENZITES Fries.

Lenzites acuta Berk. Lond. Journ. Bot. 1 (1842) 146.
PHILIPPINES (2028 *Cuming*) fide Berk. l. c.

Lenzites pallida Berk. Lond. Journ. Bot. 1 (1842) 146.
PHILIPPINES (2030 *Cuming*) fide Berk. l. c.

Lenzites platypoda Lév. Ann. Sci. Nat. III. 2 (1844) 180.
LUZON, Manila, on trunks (Herb. Mus. Paris) fide Lév. l. c.

MICROPORUS Beauv.

Microporus perula Beauv. Fl. d'Oware et Benin 1 (1804) 14. *pl. 8. f. 2.*
CULION (3605 *Merrill*) December, 1902, on decaying logs. MINDANAO, Taraca River (*E. A. Mearns*) April 6, 1904.

POLYPORUS Mich.

Polyporus grammocephalus Berk. Lond. Journ. Bot. 1 (1842) 148.
PHILIPPINES (1991 *Cuming*) fide Berk. l. c.

Polyporus vibecinus Fr. Kongl. Vet.-Akad. Handl. Stock. 1848[1] (1849) 126.
LUZON, Province of Isabela (*Warburg*) fide Henn. Hedw. **32**: 219.

POLYSTICTUS Fries.

Polystictus affinis (Nees) Fr. Nov. Act. Reg. Soc. Sci. Ups. III. 1 (1855) 75.
Polyporus affinis Nees. Nov. Act. Acad. Nat. Cur. 13[1] (1826) *pl. 4. f. 1.*
LUZON, Province of Isabela (*Warburg*) fide Henn. Hedw. **32**: 220; Province of Bataan, Mount Mariveles (3495 *Merrill*) October, 1903, on dead trees at the summit at about 1,400 m.; Lamao (3535 *Merrill*) October, 1903.

Polystictus badius (Berk.) Cke. Grev. 14 (1886) 86. *Trametes badia* Berk. Lond. Journ. Bot. 1 (1842) 151.
PHILIPPINES (1995 *Cuming*) fide Berk. l. c. CULION (3526 *Merrill*) December, 902, on fallen logs.

Polystictus brunneolus (Berk.) Fr. Nov. Act. Reg. Soc. Sci. Ups. III. 1 (1855) 75. *Polyporus brunneolus* Berk. Lond. Journ. Bot. 3 (1844) 187
PHILIPPINES (2027 *Cuming*) fide Berk. l. c.

Polystictus caperatus (Berk.) Fr. Nov. Act. Reg. Soc. Sci. Ups. III. 1 (1855) 92. *Polyporus caperatus* Berk. Ann. Nat. Hist. 3 (1839) 391.
PHILIPPINES (2024 *Cuming*) fide Berk. Lond. Journ. Bot. 1: 149.

Polystictus cichoriaceus Fr. Nov. Act. Reg. Soc. Sci. Ups. III. 1 (1855) 92. *Polyporus intybaceus* Berk. Lond. Journ. Bot. 1 (1842) 149, non Fr.
PHILIPPINES (1987 *Cuming*) fide Berk. l. c. LUZON, Province of Bataan, Lamao (3528 *Merrill*) October, 1903.

Polystictus cumingii (Berk.) Cke. Grev. 14 (1886) 77. *Polyporus cumingii* Berk. Lond. Journ. Bot. 1 (1842) 147.
PHILIPPINES (1986 *Cuming*) fide Berk. l. c.

Polystictus dermatodes (Lév.) Fr. Nov. Act. Reg. Soc. Sci. Ups. III. 1 (1855) 91. *Trametes dermatodes* Lév. Ann. Sci. Nat. III. 2 (1844) 196. *Polyporus dermatodes* Lév. Gaud.-Beaupr. Voy. Bonite, 1 (1846) 180. *pl. 138. f. 2.*
LUZON, Manila, on trunks (Herb. Mus. Paris) fide Lév. l. c. This species is said to closely resemble in habit *Hexagonia sericea* Fr. Epicr. (1838) 497, and has been reduced by some authors to the latter.

Polystictus elongatus (Berk.) Fr. Nov. Act. Reg. Soc. Sci. Ups. III 1 (1855) 78. *Polyporus elongatus* Berk. Lond. Journ. Bot. 1 (1842) 149.
PHILIPPINES (2023 *Cuming*) fide Berk. l. c. LUZON, Province of Isabela (*Warburg*) fide Henn. Hedw. **32**: 220. Berkeley says, op. cit. 457, that this is "probably *Polyporus flabellum* Mont.," but later authors have kept them separate.

Polystictus flabelliformis (Klotz.) Cke. Grev. 14 (1886) 78. *Polyporus flabelliformis* Klotz. Linnaea 8 (1833) 483.
MINDANAO (*Warburg*) fide Henn. Hedw. **32**: 220.

Polystictus gallo-pavonis B. & Br. Trans. Linn. Soc. Bot. II. 2 (1883) 59.
PHILIPPINES (*Warburg*) fide Henn. in Warb. Mons. 1: 11.

Polystictus kurzianus Cke. Grev. 15 (1886) 22.
LUZON, Province of Tayabas (*Warburg*) fide Henn. Hedw. **32**: 220.

Polystictus luteus (Nees) Fr. Nov. Act. Reg. Soc. Sci. Ups. III. 1 (1855) 74. *Polyporus luteus* Nees. Nov. Act. Acad. Nat. Cur. 13 (1826) 16. *pl. 4.*
MINDORO, Baco River (3582 *Merrill*) April, 1903. PALAWAN, E-wi-ig River (3585 *Merrill*) February, 1903.

Polystictus meyenii (Klotz.) Cke. Grev. 14 (1886) 83. *Polyporus meyenii* Klotz. Nov. Act. Acad. Nat. Cur. 19 (1843) Suppl. 236.
LUZON, Manila, on trunks, fide Klotz. l. c.

Polystictus microloma (Lév.) Cke. Grev. 14 (1885) 79. *Polyporus microloma* Lév. Ann. Sci. Nat. III 2 (1844) 183.
LUZON, Manila, on trunks (Herb. Mus. Paris) fide Lév. l. c.

Polystictus modestus (Kunze.) Cke. Grev. 14 (1886) 79. *Polyporus modestus* Kze. Linnaea. 5 (1830) 519.
PHILIPPINES (2027 *Cuming*) fide Berk. Lond. Journ. Bot. 1: 149.

Polystictus obstinatus Cke. Grev. 14 (1886) 83. *Trametes obstinatus* Cke. l. c. 12 (1883) 17.
LUZON, Province of Isabela (*Warburg*) fide Henn. Hedw. 32: 220.

Polystictus occidentalis (Klotz.) Fr. Nov. Act. Reg. Soc. Sci. Ups. III. 1 (1855) 90. *Polyporus occidentalis* Klotz. Linnaea 8 (1833) 486. *Trametes occidentalis* Fr. Epicr. (1838) 491
CULION (3571 *Merrill*) December, 1902. LUZON, Province of Isabela, (*Warburg*) fide Henn. Hedw. 32: 219. NEGROS (*Usteri*) fide Henn. in Usteri Beitr. (1905) 136.

Polystictus persoonii Cke. Grev. 14 (1886) 85. *Daedalea sanguinea* Klotz. Linnaea 8 (1833) 481.
NEGROS (*Usteri*) fide Henn. in Usteri Beitr. (1905) 136.

Polystictus velutinus (Fr.) Cke. Grev. 14 (1886) 83. *Boletus velutinus* Pers. Syn. 2 (1801) 539. *Polyporus velutinus* Fr. Syst. Myc. 1 (1821) 368.
PHILIPPINES (1992 *Cuming*) fide Berk. Lond. Journ. Bot. 1: 149.

Polystictus versatilis (Berk.) Fr. Nov. Act. Soc. Sci. Ups. III. 1 (1855) 93. *Trametes versatilis* Berk. Lond. Journ. Bot. 1 (1842) 150. *Polyporus versatilis* Berk. Gaud.-Beaupr. Voy. Bonite 1 (1846) 182. *pl. 138 f. 1.*
LUZON, Manila, on trunks (Herb. Mus. Paris) fide Lév. in Gaud.-Beaupr. Voy. Bonite l. c. Province of Isabela (*Warburg*) fide Henn. Hedw. 32: 220. NEGROS (*Usteri*) fide Henn. in Usteri Beitr. 136. Philippines (2026 *Cuming*) fide Berk. l. c.

Polystictus xanthopus Fr. Nov. Act. Reg. Soc. Sci. Ups. III. 1 (1855) 74. *Polyporus xanthopus* Fr. Obs. 2 (1818) 255; Rel. Afz. (1860) *pl. 3. f. 6.*
LUZON, Province of Bataan (3498 *Merrill*) October, 1903, on fallen logs; Province of Isabela (*Warburg*) fide Henn. Hedw. 32: 221. LUZON (*Loher*) fide Massee Kew Bull. (1899) 176; Manila, fide Lév. in Gaud.-Beaupr. Voy. Bonite 1: 175. PALAWAN, E-wi-ig River (3588 *Merrill*) February, 1903. PHILIPPINES (2032, 2033, 2039 *Cuming*) fide Berk. Lond. Journ. Bot. 1: 147.
This may be a synonym of *Microporus perula* Beauv.

PYCNOPORUS Karst.

Pycnoporus sanguineus (L.) Nees Esseq. (1818) 304. *Boletus sanguineus* Linn. Sp. Pl. ed. 2 (1763) 1646. *Polystictus sanguineus* Fr. Nov. Act. Reg. Soc. Sci. Ups. III. 1 (1855) 74
LUZON (*Loher*) fide Massee in Kew Bull. (1899) 176: Province of Tarlac (3601 *Merrill*) November, 1903: Province of Isabela (*Warburg*) fide Henn. Hedw. 32:

220: Manila, fide Klotz. Nov. Act. Nat. Cur. 19 (1843) Suppl. 1: 235. NEGROS (*Usteri*) fide Henn. in Usteri Beitr. (1905) 136. PHILIPPINES (2029, 2040 *Cuming*) fide Berk. Lond. Journ. Bot. 1: 149.

TRAMETES Fries.

Trametes beyrichii Fr. Epicr. (1838) 491. *Polyporus beyrichii* Fr. Linnaea 5 (1830) 518.
PHILIPPINES (2022 *Cuming*) fide Berk. Lond. Journ. Bot. 1 (1842) 151.

Trametes incana Lév. Ann. Sci. Nat. III. 2 (1844) 196. *Polyporus incanus* Lév. in Gaud.-Beaupr. Voy. Bonite 1 (1846) 138. *pl. 137. f. 2.*
LUZON, Manila, on trunks (*Gaudichaud*) fide Lév. l. c.

AGARACALES.

AGARICUS Linn.

Agaricus (Psalliota) argyrostectus Copel. Ann. Myc. 3 (1905) 27; Govt. Lab. Publ. 28 (1905) 144.
MINDANAO, Davao (*Copeland*) in open pastures.

Agaricus (Psalliota) boltoni Copel. ll. cc. 27, 144, last reference with plate.
MINDANAO, Davao (*Copeland*) in open pastures.

Agaricus (Psalliota) merrillii Copel. ll. cc. 27, 144, last reference with plate.
LUZON, Manila (*Copeland*) terrestrial under trees.

Agaricus (Psalliota) manilensis Copel. ll. cc. 28, 145.
LUZON, Manila (*Copeland*) in lawns.

Agaricus (Psalliota) perfuscus Copel. ll. cc. 28, 145.
LUZON, Manila (*Copeland*) in shaded ground.

Agaricus (Psalliota) philippinensis Berk Lond. Journ. Bot. 1 (1842) 144.
PHILIPPINES (1981 *Cuming*) fide Berk. l. c. (Not in Sacc. Syll. Fung.)

COPRINUS Pers.

Coprinus ater Copel. Ann. Myc. 3 (1905) 25; Govt. Lab. Publ. 28 (1905) 142.
MINDANAO, Davao (*Copeland*) on horse manure.

Coprinus bryanti Copel. ll. cc. 26, 142.
NEGROS (*Copeland*) on dead trunks of *Ficus*.

Coprinus concolor Copel. ll. cc. 26, 142.
MINDANAO, District of Davao, Todaya (*Copeland*) terrestrial in forest.

Coprinus confertus Copel. ll. cc. 25, 142, the last reference with plate.
LUZON, Manila (*Copeland*) on horse manure.

Coprinus ornatus Copel. ll. cc. 25, 142.
NEGROS, Gimagon River (*Copeland*) on wood in chip yard.

Coprinus pseudo-plicatus Copel. ll. cc. 27, 143.
LUZON, Manila (*Copeland*) on horse manure and decaying leaves.

Coprinus revolutus Copel. ll. cc. 26, 143.
LUZON, Manila (*Copeland*) on manure.

Coprinus rimosus Copel. ll. cc. 26, 143.
LUZON, Manila (*Copeland*) on horse manure.

Coprinus volutus Copel. ll. cc. 26, 143.
LUZON, Manila (*Copeland*) on decaying leaves.

LENTINUS Fries.

Lentinus badius (Berk.) Sacc. Syll. Fung. 5 (1887) 592. *Panus badius* Berk. Lond. Journ. Bot. 1 (1842) 145.
PHILIPPINES (1983 *Cuming*) fide Berk. l. c.

Lentinus sajor-caju Fr. Epicr. (1838) 393. *Agaricus sajor-caju* Fr. Syst. Myc. 1 (1821) 175; Rumph. Herb. Amb. 125. *pl. 56. f. 1.*
LUZON (*Warburg*) fide Henn. Hedw. 32: 221.

Lentinus setiger Lév. Ann. Sci. Nat. III. 2 (1844) 176; Gaud.-Beaupr. Voy. Bonite 1 (1846) 170 *pl. 136. f. 4.*
LUZON, Manila, on trunks (Herb. Mus. Paris) fide Lév. l. c.

Lentinus strigosus (Schw.) Fr. Elench. 1 (1828) 47. *Agaricus strigosus* Schw. Schrift. Natur. Ges. Leipzig 1 (1822) 89.
LUZON, Province of Isabela (*Warburg*) fide Henn. in Warb. Mons. 1: 16.

LEPIOTA Fries.

Lepiota candida Copel. Ann. Myc. 3 (1905) 29; Copel. Govt. Lab. Publ. 28 (1905) 146.
LUZON, Manila (*Copeland*) open grass lands.

Lepiota chlorospora Copel. ll. cc. 28, 145.
LUZON, Manila (*Copeland*) in lawns.

Lepiota elata Copel. ll. cc. 29, 146.
LUZON, Manila (*Copeland*) in manured lawns.

Lepiota manilensis Copel. ll. cc. 29, 145.
LUZON, Manila (*Copeland*) on ground under *Pithecolobium* and *Terminalia.*

PANAEOLUS Fries.

Panaeolus panaiensis Copel. Ann. Myc. 3 (1905) 27; Govt. Lab. Publ. 28 (1905) 144.
PANAY, Capiz (*Copeland*) on horse manure.

Panaeolus pseudo-papilionaceus Copel. ll. cc. 27, 144.
LUZON, Manila (*Copeland*) on manured ground.

PANUS Fries.

Panus connatus (Berk.) Sacc. Syllog. Fung. 5 (1887) 615. *Lentinus* (*Sclcroma*) *connatus* Berk. Lond. Journ. Bot. 1 (1842) 145.
PHILIPPINES (1993 *Cuming*) fide Berk. l. c.

PLEUROTUS Fries.

Pleurotus noctileucens (Lév.) Sacc. Syll. Fung. 5 (1887) 358. *Agaricus noctileucens* Lév. Ann. Sci. Nat. IV. 2 (1844) 171.
LUZON, Manila on trunks (Herb. Mus. Paris) fide Lév. l. c.

SCHIZOPHYLLUM Fries.

Schizophyllum alneum (Linn.) Schrot. Cohn. Krypt. Fl. Schles. 3 (1887) 383. *Agaricus alneus* Linn. Sp. Pl. (1753) 1176.
LUZON, Province of Bataan, Lamao (3527 *Merrill*) October, 1903. NEGROS (*Usteri*) fide Henn. in Usteri Beitr. 136.

XEROTUS Fries.

Xerotus fuliginosus B. & C. Proc. Am. Acad. 4 (1857) 121.
LUZON, Province of Bataan, Lamao (3497 *Merrill*) October, 1903.

PHALLALES.

DICTYOPHORA Desv.

Dictyophora phalloidea campanulata Fisch. Hedw. 32 (1893) 222.
MINDANAO, Davao (*Warburg*) fide Henn. in Warb. Mons. 1: 22.

Dictyophora speciosa Mey. Nov. Act. Acad. Nat. Cur. 19 (1843) Suppl. 239 *pl. 6.*
LUZON, on ground, fide Meyen, l. c.

LYCOPERDALES.

GEASTER Micheli.

Geaster fimbriatus Fr. Syst. Myc. 3 (1829) 16.
MINDANAO, Davao (*Warburg*) fide Henn. Hedw. 32: 222.

LYCOPERDON Tourn.

Lycoperdon todayense Copel. Ann. Myc. 3 (1905) 25; Govt. Lab. Publ. 28 (1905) 141.
MINDANAO, District of Davao, Todaya (*Copeland*) on ground under *Musa* sp.

NIDULARIALES.

CYATHUS Haller.

Cyathus montagnei Tul. Ann. Sci. Nat. II. 1 (1844) 70. *pl. 4. f. 9–10.*
MINDANAO, Davao (*Warburg*) fide Henn. in Warb. Mons. 1: 24.

SCLERODERMATALES.

TULOSTOMA Pers.

Tulostoma pusillum Berk. Lond. Journ. Bot. 1 (1842) 157. *pl. 7. f. 10.*
PHILIPPINES (1981 *Cuming*) fide Berk. l. c.

Tulostoma wightii Berk. Lond. Journ. Bot. 1 (1842) 157.
PHILIPPINES (*Cuming*, presumably, but without collector given) fide Berk. l. c.

DEUTERONYCETÆ.

SPHAEROPSIDALES.

ASCHERSONIA Mont.

Aschersonia cinnabarina P. Henn. in Warb. Mons. 1 (1900) 37. *pl. 1. f. 20.*
LUZON, Province of Rizal (Manila) on *Glochidion* sp. (*Warburg*) fide Henn. l. c.

Aschersonia confluens P. Henn. in Warb. Mons. 1 (1900) 37.
LUZON, Province of Rizal (Manila) on *Leucosyke* sp. (*Warburg*) fide Henn. l. c.

SEPTORIA Fries.

Septoria molleriana Bres. Rev. Myc. **13** (1891) 68.
LUZON, Province of Zambales, Iba (3609 *Merrill*) on *Canavalia obtusifolia*, June, 1902. Probably this species but not in condition for absolute identification.

MONILIALES.

ALTERNARIA Nees.

Alternaria solani (E. & M.) Sorauer Zeitsch. Pfl. Krankh. **6** (1896) 6. *Microsporium solani* E. & M. Am. Nat. **16** (1882) 1003.
LUZON, Province of Benguet, La Trinidad (*W. S. Lyon*) on *Solanum tuberosum* March, 1906.

FUSARIUM Link.

Fusarium paspalicola P. Henn. in Warb. Mons. 1 (1900) 38.
MINDANAO, Davao (*Warburg*) on *Paspalum*, fide Henn. l. c.

ISARIA Pers.

Isaria sphingum Schw. Schrift. Naturf. Gesell. Leips. **1** (1822) 126.
LUZON, Manila (*Loher*) on undetermined larvæ, fide Massee, Kew Bull. 196.

RAMULARIA Unger.

Ramularia catappae Racib. Paras. Alg. & Pilz. Java. **2** (1900) 41.
LUZON, Manila, on *Terminalia catappa* (3610 *Merrill*) July, 1902. Probably this species but not in condition for positive identification.

BIBLIOGRAPHY.

BERKELEY, M. J. Decades of Fungi. *Lond. Journ. Bot.* **3** (1844) 185–194. *pls. 9–6.*

—— Enumeration of Fungi collected by H. Cuming Esq., F. L. S., in the Philippine Islands. *Lond. Journ. Bot.* **1** (1842) 142–157. *pls. 6–7.*

—— Contributions to the Botany of H. M. S. *Challenger*. XXXVIII. Enumeration of the Fungi collected during the Expedition of H. M. S. *Challenger*, 1874–75. (Third Notice) *Journ. Linn. Soc. Bot.* **16** (1878) 45–48.

COPELAND, E. B. Fungi Esculentes Philippinenses. *Ann. Myc.* **3** (1905) 25–29. Translation in *Govt. Lab. Publ.* **28** (1905) 141–146, *pls. 3.*

HENNINGS, P. Fungi, in Warburg, *Monsunia* **1** (1900) 1–38.

—— Fungi, in Usteri, Beiträge zur Kenntniss der Philippinen und ihrer Vegetation mit ausblicken auf Nachbargebeite. (Inaug. Diss. Ph. D. Zurich.) (1905) p. 136.

—— Fungi Warburgiana. *Hedwigia* **32** (1893) 216–227. *pl. 8.*

KLOTZSCH, J. F. Fungi in F. J. Meyen Beitrage zur Botanik, *Nov. Act. Acad. Caes. Leop.-Carol. Nat. Cur.* **19** (1843) Suppl. **1**: 233–246.

LÉVEILLE, J. H. Champignons Exotiques, *Ann. Sci. Nat.* III. **2** (1844) 167–221.

—— Champignons in Gaud.-Beaupr. Voy. Bonite, **1** (1846) 164–204.

MASSEE, G. Fungi Exotici II. Philippine Islands. *Kew Bull. Misc. Inf.* (1899) 176.

MONTAGNE, CAMILLE. Plantes Cellulaires exotiques nouvelles. Dec. V–VIII. *Ann. Sci. Nat.* II. **18** (1842) 241–242.

NEES VON ESENBECK, F. Fungi, in Presl Reliquiae Haenkeanae **1** (1830) 1.

SYDOW, H. ET P. Neue und kritische Urendineen, IV. *Ann. Myc.* **4** (1906) 28–32.

LIST OF PHILIPPINE FUNGI ENUMERATED BY BERKELEY, JOURN. LINN. SOC. BOT. 16 (1878), PP. 45 TO 48, OVERLOOKED BY MR. RICKER.

Lentinus leveillei Berk.
Lentinus abnormis Berk.
Lentinus exilis Kl.
Schizophyllum commune N.
Polyporus (*Mesopus*) *xanthopus* Fr.
Polyporus (*Mesopus*) *grammocephalus* Berk.
Polyporus (*Pleuropus*) *affinis* Nees.
Polyporus (*Pleuropus*) *lucidus* Fr.
Polyporus (*Pleuropus*) *gibbosus* Nees.
Polyporus (*Pleuropus*) *sanguineus* Fr.
Polyporus (*Anodermei*) *laeticolor* Berk.
Polyporus (*Anodermei*) *ostreaeformis* Berk.
Polyporus (*Placodermei*) *zonalis* Tr.
Polyporus (*Placodermei*) *zonalis* var. *semilaccatus* Berk.
Polyporus (*Placodermei*) *calignosus* Berk.
Polyporus (*Placodermei*) *senex* Mont.
Polyporus (*Placodermei*) *endothcius* Berk.
Polyporus (*Placodermei*) *ignarius*.
Polyporus (*Placodermei*) *pectinatus* Klotz.
Polyporus (*Inodermei*) *caperatus* Berk.
Trametes conchatus Berk.
Trametes mollis Fries.
Trametes occidentalis Fries.
Hexagona crinigera Fries.
Hexagona albida Berk.
Hexagona flabelliformis Berk.
Hexagona cladophora Berk.
Favolus scaber Berk.
Favolus scaber Berk. var. *platyporus* Berk.
Irpex zonatus Berk.
Stereum ostrea Nees.
Stereum mosclei Berk.
Xylaria hypoxylon Grev.

NEW PHILIPPINE ASCLEPIADACEÆ.

By R. SCHLECHTER.
(*Berlin, Germany.*)

TOXOCARPUS W. et A.

Toxocarpus Merrillii Schltr. sp. nov.

Terrestris, ramosa, alte scandens; ramis ramulisque filiformibus elongatis, flexuosis, minute puberulis vel subglabris, bene foliatis; foliis petiolatis, patentibus patulisve late oblongis, apiculatis, superne lucidis, glabris, subtus pallidioribus, brevissime et molliter ferrugineo-pubescentibus, 6–8 cm. longis, medio fere 4–6.3 cm. latis, petiolo minute puberulo, circ. 1.5 cm. longo; cymis ramosis sublaxae multifloris, breviter ferrugineo tomentosulis petiolo fere duplo longioribus; floribus in genere mediocribus; calycis segmentis ovatis, obtusis, ferrugineo-tomentosulis, circ. 0.3 cm. longis; corollae tubo campanulato, extus glabro, intus sparsim puberulo, fauce barbato, calycem vix excedente, lobis linearibus, obtusiusculis, utrinque glabris, circ. 0.5 cm. longis; coronae foliolis rhomboideo-lanceolatis, subacutis, glabris, antheram quarto parte fere superantibus; antheris oblongo-quadratis, marginibus cartilagineis valde angustis, appendice hyalina ovata, subacuta. Stigmatis capite alte rostrato, rostro cylindrico subacuto, in tubo corollae incluso.

LUZON, Province of Rizal, Bosoboso (2810 *Merrill*) July, 1903.

Readily distinguished from all other Philippine species of this genus by its broad leaves, which are glabrous above, and by its flower characters.

GYMNEMA R. Br.

Gymnema pachyglossum Schltr. sp. nov.

Volubile, alte scandens, ramosum; ramis ramulisque elongatis, flexuosis, teretibus, primum minute puberulis, demum glabratis, bene foliatis; foliis petiolatis ovatis vel ovato-ellipticis, acuminatis, utrinque glabris, 5–7 cm. longis, medio vel infra medium 2.3–4.6 cm. latis, petiolo 1–1.5 cm. longo; cymis subaxillaribus, vulgo oppositis, breviter pedunculatis, umbelliformibus, densifloris, vulgo petiolo aequilongis nunc paullo longioribus; floribus in genere inter minores, illis *G. Schlechteriani* Warb. similibus et fere aequimagnis, flavis, odoratis; pedicellis brevibus circ. 0.2 cm. longis, minute puberulis; calycis segmentis suborbicularibus

obtusis, margine minute ciliatis, extus sparsissime puberulis, 0.1 cm. longis; corollae tubo late campanulato, calyci aequilongo, extus glabro, intus minute et sparsim puberulo, lobis oblongis obtusis utrinque glabris, patentibus, tubo vix longioribus; coronae foliolis in sinubus corollae carnosis, facie oblongis apice uncinato incurvulis; gynostegio in tubo corollae incluso; antheris oblongis, appendice hyalina semiorbiculari, obtusissima; pollinii oblique oblongoideis, subsessilibus, retinaculo oblongoideo, polliniis plus duplo minore; stigmatis capite obtuso.

Luzon, Province of Bataan, Lamao River (3291 *Merrill*) October, 1903; Province of Rizal, Bosoboso (1898 *Ahern's collector*) October, 1904.

Allied to *Gymnema Schlechterianum* Warb., but well distinguished by its corona.

TYLOPHORA R. Br.

Tylophora Elmeri Schltr. sp. nov.

Volubilis, alte scandens, ramosa, ramis ramulisque filiformibus elongatis, teretibus, subglabris, laxe foliatis, flexuosis; foliis petiolatis erecto-patentibus, lanceolatis vel anguste oblongis, acuminatis vel apiculatis, utrinque glabris, textura coriaceis, subtus reticulato-nervosis, 3–6 cm. longis, infra medium 0.8–2.2 cm. latis, petiolo teretiusculo 0.3–1 cm. longo; cymis perlaxis, plurifloris, usque ad 8 cm. longis, pedicellis gracillimis filiformibus, glabris, circ. 0.8 cm. longis; floribus illis *T. silvaticae* Dene. fere aequimagnis, ut videtur purpureis; calycis segmentis ovatis acutiusculis, glabris, 0.1 cm. longis; corolla subrotata, alte 5-lobata, lobis oblongis extusis, extus glabris, intus minutissime papillosis, 0.2 cm. longis; coronae foliolis carnosis, tubo gynostegii usque ad apicem adnatis late ovoideis, obtusis, basi truncato-obtusatis, basin antherarum attingentibus; antheris quadratis, marginibus cartilagineis bene conspicuis utrinque truncatis, appendice hyalina semiorbiculari; polliniis late oblongoideis obliquis, translatoribus tenuibus duplo brevioribus retinaculo oblongoideo fere aequilongis.

Luzon, Province of Benguet, Baguio (5980 *Elmer*) March, 1904.

The affinity of this species is with *Tylophora tenuis* Bl., but the leaves are longer and narrower and the flowers larger. Externally it closely resembles *T. luzonica* Schltr.

Tylophora luzonica Schltr. sp. nov.

Volubilis, scandens, ramosa, ramis ramulisque filiformibus elongatis, flexuosis, glabris vel subglabris, laxe foliatis; foliis petiolatis patentibus vel erecto-patentibus lanceolato-oblongis, apiculatis vel breviter acuminatis, glabris, textura coriaceis, 2.4–4.5 cm. longis, infra medium 0.9–1.7 cm. latis, petiolo 0.3–0.8 cm. longo; cymis elongatis, perlaxe plurifloris usque ad 13 cm. longis, pedicellis gracillimis filiformibus, sparsim pilosulis, 0.4 cm. longis; floribus illis *T. Elmeri* Schltr. simillimis aequimagnisque; calycis segmentis minute et sparsim pilosulis, margine ciliatis, ovatis, obtusiusculis, corollae fere duplo brevioribus; corolla subrotata alte 5-fida, lobis oblongis obtusis apice minute excisis, utrinque

glabris, 0.2 cm. longis; coronæ foliolis triangulo-ovoideis obtusis basi truncato-rotundatis, usque ad apicem tubo gynostegii adnatis, basin antherarum attingentibus; antheris quadratis, marginibus cartilagineis bene conspicuis, appendice hyalina semiorbiculari obtussisima; polliniis oblique late oblongoideis, translatoribus tenuibus, fere triplo brevioribus, retinaculo oblongo, longitudine dimidium polliniorum excedente; folliculis gracilibus rostratis, circ. 5 cm. longis.

Luzon, Province of Union, Bauang (5585 *Elmer*) February, 1904.

Closely allied to *Tylophora Elmeri* Schltr., but well distinguished by the ciliate sepals and glabrous excised corolla lobes.

Tylophora Merrillii Schltr. sp. nov.

Terrestris, volubilis, alte scandens, ramosa; ramis ramulisque filiformibus elongatis, flexuosis, subglabris, laxe foliatis; foliis petiolatis erecto-patentibus patulisve ovato-oblongis acuminatis, utrinque glabris, textura papyraceis, 5.5–8 cm. longis, infra medium 3–5 cm. latis, petiolo subglabro 1.2–1.5 cm. longo; cymis gracillimis 6–8 cm. longis laxe multifloris; floribus fasciculatis, pedicellis gracillimis filiformibus sparsim pilosulis, 0.3–0.4 cm. longis, floribus in genere inter minores; calycis segmentis ovato-lanceolatis subacutis extus sparsim pilosulis, corollae fere duplo brevioribus; corolla subrotata alte 5-fida, lobis oblongis obtusis, apice breviter excisis, utrinque glabris, circ. 1.5 mm. longis; coronae foliolis usque ad apicem tubo gynostegii adnatis ovoideis obtusis, carnosis, basin antherarum subexcedentibus; antheris quadratis, marginibus cartilagineis bene conspicuis, appendice hyalina semiorbiculari obtusissima; polliniis oblongoideis, translatoribus tenuibus, plus duplo brevioribus, retinaculo oblongoideo poliniis duplo breviore; folliculo gracili rostrato, circ. 5 cm. longo.

Luzon, Province of Rizal, Caloocan (3648 *Merrill*) November, 1903. In thickets by roadsides near sea level.

An ally of *Tylophora luzonica* Schltr., and *T. excisa* Schltr., characterized by its larger and broader leaves and smaller flowers.

Tylophora Whitfordii Schltr. sp. nov.

Volubilis scandens ramosa, ramis ramulisque filiformibus elongatis, flexuosis subglabris, laxe foliatis; foliis patentibus patulisve, petiolatis, lanceolatis vel ovato-lanceolatis, acuminatis, 2.5–3.5 cm. longis, infra medium 1.2–1.5 cm. latis, utrinque glabris, textura pro genere tenuibus, petiolo 0.7–1 cm. longo; cymis laxe ramosis usque ad 8 cm. longis, laxe 10–20-floris; pedicellis filiformibus gracillimis circ. 0.5 cm. longis; floribus illis *T. tenuis* Bl., similibus et fere aequimagnis purpureis; calycis segmentis ovato-lanceolatis subacutis, extus sparsissime setosulis, margine haud ciliatis, corollae duplo brevioribus; corolla subrotata alte 5-fida, lobis oblongis obtusissimis utrinque glabris, 1.5 mm. longis; coronae foliolis tubo gynostegii omnino adnatis, carnosis, obtusis, basi subtruncato-obtusatis, basin antherarum paululo superantibus; antheris quadratis,

marginibus cartilagineis utrinque truncatis, appendice hyalina semiorbiculari, obtusissima; stigmatis capite depresso.

LUZON, Province of Tayabas, Gumaca (898 *Whitford*) September, 1904. In the Nipa formation at sea level.

An ally of *Tylophora tenuis* Blume. Unfortunately the material is rather scanty and not in good state of preservation, no pollinia being found.

CONCHOPHYLLUM K. Sch.

Conchophyllum Copelandii Schltr. sp. nov.

Epiphyticum, scandens ramosum; caule ramisque elongatis flexuosis, laxe foliatis, teretibus, glabris; foliis petiolatis oblongo-ellipticis, obtusis, basi cuneatis glabris, textura crasse coriaceis, 5–7 cm. longis, 1.8–2.7 cm. medio fere latis, petiolo carnoso 1–1.5 cm. longo; cymis pedunculatis vulgo dichotomis, rhachi incrassata demum cylindrica, pedunculo petiolo fere aequilongo vel paullo longiore; floribus in seriebus umbellatis illis *C. imbricati* Bl., similibus et aequimagnis, breviter pedicellatis; calycis segmentis ovatis, obtusis, glabris, circ. 0.1 cm. longis; corolla ampullacea circ. 0.4 cm. longa, tubo subgloboso circ. 0.3 cm. diametiente glabro, intus fauce lamella annulari quinquelobata donato, e buccis 5 obtusis basi puberulis cum lobis corollae alternantibus ornato; corollae lobis ovato oblongis obtusiusculis glabris, intus medio carinato-incrassatis; gynostegio conico; antheris dorso medio vesicato, vesiculo basi bilobato, appendice hyalina oblonga, obtuso; poliniis oblique oblongoideis, translatoribus clavatis poliniis fere duplo brevioribus, retinaculo rhomboideo translatoribus longiore.

MINDANAO, Davao (337, 340, 388 *Copeland*) March, 1904, epiphytic and symbiotic with ants.

A very distinct species, differing from all the others in the genus by its leaves and anthers. The latter are thickened in the middle at the back into a bilobed bladder-like callosity.

DISCHIDIA R. Br.

Dischidia Copelandii Schltr. sp. nov.

Epiphytica, dependens, gracilis, ramosa; caule ramisque elongatis, filiformibus, flexuosis, glabris, bene foliatis, radicantibus; foliis patentibus breviter petiolatis ovato-orbicularibus vel ovatis, breviter acutis vel apiculatis, glabris, textura carnosis, 0.8–1.2 cm. longis, medio fere 0.6–1 cm. latis, petiolo perbrevi; cymis subsessilibus plurifloris; floribus breviter pedicellatis illis *D. Ridleyanae* Schltr. similibus et fere aequimagnis; calycis segmentis ovato-oblongis, obtusis, glabris, 0.5 mm. longis; corolla subglobosa, circ. 0.2 cm. diametiente apice brevieter 5-lobulata, tubo globoso fauce barbellato excepto glabro, intus nudo, lobulis erectis ovato-triangulis acutis intus incrassatis glabris; coronae foliolis linearibus erectis tertia parte apicali bibrachiatis, brachiis divergentibus falcato deflexis, linearibus, obtusis; gynostegio conico foliola coronae paulo excedente; antherarum appendice hyalino oblongo obtuso; poliniis oblique

oblongoideis, translatoribus oblique cuneatis poliniis paulo brevioribus, retinaculo oblongoideo translatoribus fere duplo breviore.

MINDANAO, Davao (521 *Copeland*) March, 1904. Pendant in large bunches.

This is one of the species which has evidently been regarded as one of the forms of *Dischidia nummularia* R. Br., a species of North Australia. Its nearest ally is *D. Ridleyana* Schltr., from Singapore.

Dischidia Merrillii Schltr. sp. nov.

Epiphytica in truncis arborum, gracilis, pauciramosa, decumbens vel dependens; caule ramisque filiformibus elongatis, teretibus, puberulis, radicantibus, laxe foliatis; foliis petiolatis, patentibus patulisve lanceolato-ellipticis, acuminatis, glabris, textura coriaceis, 4–5 cm. longis, medio fere 1.5–2.3 cm. latis, petiolo tereti glabro, circ. 0.5 cm. longo; cymis paucifloris breviter pedunculatis pedunculo circ. 0.5 cm. longo, pedicellis tenuibus circ. 1.5 mm. longis; floribus in genere inter mediocres, lilacinis; calycis segmentis ovato-oblongis, obtusis, glabris, 0.1 cm. longis; corolla cylindracea basin versus paulo ampliato, breviter 5-lobulata, lobulis late ovatis obtusiusculis, annulo pilorum erectorum in fauce et intus in medio tubi; coronae foliolis e basi paulo dilatata linearibus, apice peltato-dilatatis bipartitis, partitionibus oblique ovatis patulis, parte basilari bene brevioribus; gynostegio cylindraceo apice conico, appendice hyalino antherarum e basi oblonga acuminata; poliniis oblique oblongoideis, translatoribus oblique cuneatis poliniis fere triplo brevioribus, retinaculo minuto.

LUZON, Province of Pampanga, Mount Arayat (3904 *Merrill*) October, 1904. At and near the summit of the mountain in the slightly developed mossy forest.

A species related to *Dischidia hirsuta* Wall., but well distinguished by the small differently shaped flowers and larger thinner leaves.

Dischidia myrtillus Schltr. sp. nov.

Epiphytica in arboribus, ramosa; caule ramisque radicantibus elongatis flexuosis, teretibus, dense granulosis, dense foliatis; foliis erecto-patentibus ovato-lanceolatis vel ovato-ellipticis, acuminatis, glabris, textura coriaceis, 1–1.8 cm. longis, medio vel infra medium 0.6–0.9 cm. latis, petiolo perbrevi; cymis paucifloris subsessilibus, pedicellis tenuibus glabris, circ. 1.5 mm. longis; calycis segmentis oblongis obtusis sparsim ciliatis, longitudine 0.1 cm. haud attingentibus; corolla ampullacea illae *D. Ridleyanae* Schltr. simili, paulo majore, 0.3 cm. longa, tertia parte apicali 5-lobata, tubo subgloboso, 0.2 cm. longo, glabro, fauce pilis deflexis barbellato, lobis erectis ovato-oblongis obtusiusculis intus incrassatis glabris; coronae foliolis e basi lineari bibrachiatis, brachiis linearibus divaricatis, dimidio anteriore oblique oblongo-dilatatis obtusis, parte basilari brachiis aequilonga; gynostegio conico foliola coronae paulo excedente; antherarum appendice oblongo-obtuso; poliniis oblique oblongoideis, translatoribus subduplo brevioribus oblique cuneatis retinaculo rhomboideo, translatoribus subduplo breviore; folliculis gracilibus, ros-

tratis, glabris, circ. 3.5 cm. longis, infra medium circ. 0.2 cm. diametientibus.

LUZON, Province of Benguet, Sablan (6256 *Elmer*) April, 1904; Province of Pampanga, Mount Arayat (3838 *Merrill*) May, 1904, summit at about 830 m.

Distinguished from all other species of the genus by its dense leaves. In shape, the leaves resemble most those of *Dischidia ruscifolia* Bl.

Dischidia platyphylla Schltr. sp. nov.

Epiphyticum in ramis truncisque arborum decumbens vel dependens, parum ramosa; caule ramisque filiformibus elongatis, flexuosis, teretibus, glabris, laxe foliatis, glaucis; foliis patentibus, sessilibus, reniformibus, obtusissimis, glabris, textura carnosis, 2–3 cm. longis, medio fere 3–4 cm. latis, glaucis; cymis capitiformibus abbreviatis, congestifloris, pedunculo tereti, glabro, 3–4 cm. longo; floribus subgloboso ovoideis, illis *D. Rafflesianae* Wall. fere aequimagnis; calycis segmentis ovatis obtusis, glabris, longitudine vix 0.1 cm. excedentibus; corolla subgloboso-ovoidea apice breviter 5-lobata, tubo utrinque glabro, infra medium 0.3 cm. diametiente, faucem versus mox constricto, 0.3 cm. longo, lobis minutis, circ. 0.1 cm. longis, erectis, ovato-triangulis subacutis, carnosis intus infra medium pilis deflexis barbatulis, annula squamularum basi decemlobato, apice quinque lobato in fauce; coronae foliolis e basi lineari bibrachiatis, brachiis divergenti-patulis linearibus, apice bifidis, segmenta superiore semiovata, inferiore lineari aequilonga, parte basilari foliolorum brachiis aequilonga; gynostegium conicum, coronum excedente; appendicibus antherarum hyalinis ovatis acutis; poliniis oblique obovoideis, translatoribus oblique cuneatis, poliniis duplo brevioribus, retinaculo minuto rhomboideo.

MINDANAO, Davao (338 *Copeland*) March, 1904.

This species is well distinguished by its corona scales; in habit it somewhat resembles *Dischidia Collyris* Wall.

Dischidia rosea Schltr. sp. nov.

Epiphytica, decumbens vel dependens, pauci ramosa; caule ramisque radicantibus elongatis flexuosis subglabris, teretibus, laxe foliatis; foliis patentibus lanceolato-ellipticis acuminatis utrinque glabris, textura coriaceis, 3.5–5.5 cm. longis, infra medium 1.5–2 cm. latis, petiolo tereti, subglabro, 0.3–0.5 cm. longo; cymis extra-axillaribus breviter pedunculatis, subumbellato-plurifloris, pedunculo tereti petiolo fere aequilongo, pedicellis tenuibus circ. 0.2 cm. longis; floribus illis *D. hirsutae* Wall. similibus et aequimagnis, roseis; calycis segmentis ovatis obtusiusculis glabris, 1.5 mm. longis; corolla ampullacea 0.7 cm. longa tubo faucem versus conspicue attenuato extus glabro, intus infra medium et fauce annulo pilorum erectorum ornato, lobis ovatis, obtusiusculis, minutis, utrinque glabris; coronae foliolis erectis e basi ovata angustatis, apice peltato-dilatis, bipartitis, partitionibus oblique ovatis patulis, parte basilari multo brevioribus; gynostegio, foliola coronae vix duplo excedente, cylindraceo apice conico; antherarum appendice hyalino, oblongo acuto;

polliniis oblique oblongoideis, translatoribus oblique cuneatis polliniis fere triplo brevioribus, retinaculo oblongoideo tamen paulo longioribus.

LUZON, Province of Benguet, Baguio (5838 *Elmer*) March, 1904.

Like *Dischidia Merrillii* Schltr., related to *D. hirsuta* Wall., but distinguished from the former by the shape of the corolla and from the latter by its leaf characters.

HOYA R. Br.

Hoya benguetensis Schltr. sp. nov.

Epiphytica, volubilis, scandens, ramosa; caule ramisque filiformibus elongatis, flexuosis, teretibus, glabris, laxe foliatis; foliis ellipticis vel ovato-ellipticis acuminatis, glabris, textura crasse coriaceis, nervis primariis 5 bene conspicuis, 6–10 cm. longis, medio vel infra medium 2.5–4 cm. latis, petiolo brevi carnoso, 0.5–0.8 cm. longo; cymis umbelliformibus multifloris, rhachis demum cylindrica elongata, pedunculo nunc brevi nunc usque ad 7.5 cm. longo, pedicellis filiformibus gracilibus, glabris, 1–1.3 cm. longis; floribus ut videtur rubidis in genere mediocribus; calycis segmentis ovatis obtusis glabris, vix 0.2 cm. longis; corolla usque infra medium 5-fida rotata, extus glabra, intus minutissime et subinconspicuo farinoso-papillosa, circ. 1 cm. diametiente, lobis late ovatis, acutis, circ. 0.3 cm. longis; coronae foliolis subhorizontalibus, apice obtuse rostratis porrectis, dorso obtusis, superne usque infra apicem longitudinaliter carinatis, subtus sulcatis; poliniis oblique clavatis translatoribus brevissimis, retinaculo rhomboideo.

LUZON, Province of Benguet, Baguio (5979 *Elmer*) March, 1904.

A species in leaf characters somewhat resembling *Hoya camphorifolia* Warb., but well distinguished from that species by its flowers, which are apparently reddish.

Hoya bilobata Schltr. sp. nov.

Epiphytica, ramosa, ramis caulibusque elongatis, teretibus, puberulis, bene foliatis; foliis brevissime petiolatis late ellipticis vel suborbicularibus, obtusis, glabris, textura coriaceis, 1.7–2.2 cm. longis, medio fere 1.3–1.8 cm. latis, petiolo circ. 0.3 cm. longo, carnoso; cymis umbelliformibus, circ. 20-floris, pedunculo tereti, glabro, 1–3 cm. longo, pedicellis filiformibus glabris, usque ad 0.8 cm. longis; floribus in genere inter minimos; calycis segmentis oblongis obtusis glabris, longitudine vix 0.1 cm. attingentibus; corolla rotata usque ad medium fere 5-lobata, extus glabra, intus breviter et dense papillosa, lobis decurvulis ovatis obtusiusculis, circ. 1.5 mm. longis; coronae foliolis apicem versus adscendentibus obtuse rostratis, dorso obtusis superne medio callo oblongo donatis, auriculis 2 supra apicem dorsalem longius productis; anthera apicem foliola vix excedente; poliniis oblongoideis, translatoribus perbrevibus, retinaculo minuto rhomboideo fere aequilongis.

MINDANAO, Davao (420 *Copeland*) March, 1904.

The smallest *Hoya* yet known from the Philippines. It is well distinguished by the corona scales, which are produced at the back into two rather large lobes.

These lobes are in reality nothing but the otherwise simply recurved sides of the horizontal corona scales, which in the case of the above species are produced beyond the dorsal apex of the scale itself.

Hoya Bordenii Schltr. sp. nov.

Epiphytica in ramis arborum, ramosa; ramis caulibusque filiformibus elongatis, flexuosis, glabris, laxe foliatis; foliis patulis lanceolato-oblongis vel anguste ellipticis, acuminatis, glabris, textura coriaceis, 11–18 cm. longis, medio vel infra medium 2.5–4.5 cm. latis, petiolo carnoso brevi 1.5–2 cm. longo; cymis umbelliformibus pedunculatis, pedunculo 3–5 cm. longo tereti, glabro, pedicellio filiformibus gracillimis glabris, 2.7 cm. longis; floribus illis *H. parasitica* Wall. fere aequimagnis, roseis; calycis segmentis ovatis obtusiusculis basin versus sparsissime puberulis, circ. 1.5 mm. longis; corolla rotata circ. 1 cm. diametiente, usque infra medium 5-lobata, extus glabra, intus minute et sparsim granuloso-papillosa, lobis ovatis acutis; coronae foliolis horizontalibus superne anguste ellipticis, apice anteriore et posteriore subacutis, medio gibbo lineari breviore longitudinaliter donato, subtus longitudinaliter foveolata; anthera apicem anteriorem folioli paululo excedente, marginibus cartilagineis angustatis falcatis; poliniis oblique oblongoideis, translatoribus brevissimis, retinaculo rhomboideo parvulo.

Luzon, Province of Bataan, Mount Mariveles (1213 *Borden*) June, 1904. In forests at 650 m.

Evidently one of the species of the *Hoya parasitica* Wall., group, and closely related to that species. However, it can be readily recognized by its long leaves and rather narrow straight corona scales.

Hoya McGregorii Schltr. sp. nov.

Epiphytica alte scandens, ramosa; caulibus ramisque filiformibus elongatis, flexuosis glabris, radicantibus, laxe foliatis; foliis patentibus patulisve, lanceolato-ellipticis, acuminatis, glabris, textura coriaceis 7–11 cm. longis, medio fere 2.5–3.5 cm. latis, petiolo teretiusculo-carnoso, 1–1.5 cm. longo; cymis pedunculatis, umbelliformibus, multifloris, pedunculo tereti, glabro, circ. 4 cm. longo, pedicellis gracilibus filiformibus, 1.3–1.8 cm. longis, glabris; floribus illis *H. Merrillii* Schltr. similibus et fere aequimagnis, roseis; calycis segmentis ovatis obtusis, glabris, circ. 0.1 cm. longis; corolla rotata, circ. 0.6 cm. diametiente, usque infra medium 5-lobata, extus glabra, intus lobis marginem versus minute granuloso-papillosis, caeterum glabra, lobis ovato-triangulis, acuminatis; coronae foliolis superne obovatis apice anteriore breviter rostratis, apice posteriore breviter excisis, bucca parvula infra apicem anteriorem, subtus longitudinaliter foveolatis; antheris foliolum paululo excedentibus, marginibus cartilagineis falcatis; poliniis oblique clavatis, translatoribus perbrevibus, retinaculo minuto oblongoideo.

Mindoro, Baco River (191 *McGregor*) April–May, 1905.

An ally of *Hoya Merrillii* Schltr., but distinguished from that species by its corona scales.

Hoya mindorensis Schltr. sp. nov.

Epiphytica, pauciramosa, caulibus ramisque radicantibus, teretibus, glabris, laxe foliatis; foliis patentibus patulisve oblanceolato-ellipticis, breviter acuminatis, glabris, textura coriaceis, 9–12 cm. longis, supra medium 3.5–4.5 cm. latis, petiolo teretiusculo carnoso, 2–2.5 cm. longo; cymis pedunculatis, umbelliformibus, multifloris, pedunculo tereti, glabro, circ. 2 cm. longo, pedicellis gracillimis filiformibus glabris, circ. 1.5 cm. longis; floribus in genere mediocribus; calycis segmentis ovatis, obtusis minute ciliatis, circ. 1.5 mm. longis; corolla circ. 0.9 cm. diametiente, recurvulata, usque infra medium 5-lobata, extus glabra, intus dimidio inferiore puberula, lobis pilis sparsis hispida, ovatis, obtusiusculis, basi utrinque obtuse auriculatis, apice auriculisque reflexis; coronae foliolis horizontalibus superne anguste ellipticis, apice anteriore acuminatis, apice posteriore acutis, medio longitudinaliter inter apices carina angusta donatis, subtus longitudinaliter foveolatis; anthera apicem folioli paululo excedente marginibus cartilagineis valde falcatis; poliniis oblongoideis, translatoribus linearibus, fere triplo brevioribus, retinaculo rhomboideo, lateraliter compressa, translatoribus paulo beviore.

Mindoro, Baco River (332 *McGregor*) April–May, 1905.

This species is very remarkable in the two auricles that exist between the corolla lobes. The pollinia too are rather unusual for the genus.

Hoya odorata Schltr. sp. nov.

Epiphytica, pauciramosa; ramis caulibusque teretibus glabris, plus minusve flexuosis, bene foliatis; foliis erecto-patentibus breviter petiolatis ellipticis vel lanceolato-ellipticis acuminatis glabris, lucidis, textura tenuiter coriaceis, 3.5–5 cm. longis, infra medium 1.3–2.2 cm. latis; floribus in umbellis paucifloris albis, odoratis, pedicellis filiformibus, tenuibus, glabris circ. 2 cm. longis; calycis segmentis lanceolato-oblongis obtusis, margine sparsim ciliatis, 0.2 cm. longis; corolla rotata, circ. 1.7 cm. diametiente, usque infra medium 5-lobata, extus glabra intus dimidio inferiore subinconspicue farinoso-papillosa, lobis ovato-triangulis acutis vel subacuminatis; coronae foliolis carnosis horizontalibus obovatis, apice anteriore acuta breviter adscendente, apice posteriore obtusissima superne medio gibbo longitudinaliter ornatis, subtus sulcatis, 0.4 cm. longis; anthera apicem anteriorum folioli haud excedente, marginibus cartilagineis falcatis; polliniis oblique oblongoideo-clavatis, translatoribus perbrevibus retinaculo parvulo rhomboideo brevioribus.

Luzon, Province of Bataan, Mount Mariveles (3202 *Merrill*) January, 1904. In the mossy forest at 1,300 m., rare.

A very distinct species with elliptical-lanceolate rather thin leaves and rather large flowers. The material is rather scanty and I have seen but two flowers; accordingly the inflorescence will have to be more fully described later when other material shall be available.

A NEW PHILIPPINE BURMANNIA.

By R. SCHLECHTER.
(*Berlin, Germany.*)

Burmannia Clementis Schltr. sp. nov.

Saprophitica, pusilla, habitu *B. nepalensis* Wall., pallida, 3–8 cm. alta, aphylla; caule gracili, tereti, squamulis paucis dissitis acuminatis obsesso, glabro, stricto vel substricto, basi subflexuoso vulgo simplice 1-paucifloro; floribus flavescentibus in genere inter minores, illis *B. nepalensis* Wall. similibus, subsessilibus, glabris, late 3-alatis, alis infra apicem medio aequilatis; corolla ampullacea ovario incluso 3–3.5 mm. longa, lobis 3 majoribus, triangulis, acuminatis, intus margine leviter incrassatis, subinconspicue papillosis, lobis 3, minutis oblongis obtusiusculis dentiformibus; antheris sessilibus loculis divaricatis connectivo incrassato basi loculos haud excedente, apice in appendicem transversam medio excisam supra loculos breviter producto; stylo subulato brachiis stylo ipso duplo brevioribus; stigmatibus peltato-concavis antheras haud superantibus; seminibus fusiformibus.

MINDANAO, Lake Lanao, Camp Keithley (21 *Mary Strong Clemens*) December, 1905, at about 800 m., in grass lands.

This little species is especially interesting as being the first endemic representative of the order to be found in the Philippines, although it is certain that other species will be found later in the region. It seems to be most closely related to *Burmannia nepalensis* Wall., but is well distinguished from that species by its anthers.

PREVIOUS PUBLICATIONS OF THE BUREAU OF GOVERNMENT LABORATORIES—Concluded.

(Concluded from second page of cover.)

No 32, 1905.—Biological Laboratory: I. Intestinal Hæmorrhage as a Fatal Complication in Amœbic Dysentery and Its Association with Liver Abscess. By Richard P. Strong, M. D. II. The Action of Various Chemical Substances upon Cultures of Amœbæ. By J. B. Thomas, M. D., Baguio, Benguet. *Biological and Serum Laboratories:* III. The Pathology of Intestinal Amœbiasis. By Paul G. Woolley, M. D., and W. E. Musgrave, M. D.

No. 33, 1905, Biological Laboratory.—Further Observations on Fibrin Thrombosis in the Glomerular and in Other Renal Vessels in Bubonic Plague. By Maximilian Herzog, M. D.

No. 34, 1905.—I. Birds from Mindoro and Small Adjacent Islands. II. Notes on Three Rare Luzon Birds. By Richard C. McGregor.

No. 35, 1905.—I. New or Noteworthy Philippine Plants, IV. II. Notes on Cuming's Philippine Plants in the Herbarium of the Bureau of Government Laboratories. III. Hackel, "Notes on Philippine Grasses." IV. Ridley, "Scitimineæ Philippinenses." V. Clarke, "Philippine Acanthaceæ." By Elmer D. Merrill, Botanist.

No. 36, 1905.—A Hand-List of the Birds of the Philippine Islands. By Richard C. McGregor and Dean C. Worcester.

The previous publications of the Bureau were given out as bulletins in serial number pertaining to the entire Bureau. These publications, if they are desired, can be obtained by applying to the librarian of the Bureau of Science, Manila, P. I., or to the Director of the Bureau of Science, Manila, P. I.

LIST OF PREVIOUS PUBLICATIONS OF THE MINING BUREAU (NOW DIVISION OF MINES OF THE BUREAU OF SCIENCE).

1890.—Descripción física, geológica y minera en bosquejo de la Isla de Panay por D. Enrique Abella y Casariego, Inspector General de Minas del Archipiélago.

1890.—Memoria descriptiva de los manantiales minero-medicinales de la Isla de Luzon, estudiados por la comisión compuesta de los Señores D. José Centano, Ingeniero de Minas y Vocal Presidente, D. Anacleto del Rosario y Sales, Vocal Farmacéutico, y D. José de Vera y Gómez, Vocal Médico.

1893.—Estudio Descriptivo de algunas manantiales minerales de Filipinas ejecutado por la comisión formada por D. Enrique Abella y Casariego, Inspector General de Minas, D. José de Vera y Gómez, Médico, y D. Anacleto del Rosario y Sales, Farmacéutico; precedido de un prólogo escrito por el Excmo. Sr. D. Angel de Avilés, Director General de Administración Civil.

1893.—Terremotos experimentados en la Isla de Luzón durante los meses de Marzo y Abril de 1892, especialmente desastrosos en Pangasinán, Unión y Benguet. Estudio ejecutado por D. Enrique Abella y Casariego, Inspector General de Minas del Archipiélago.

1901.—The Coal Measures of the Philippines. Charles H. Burritt.

1902.—Abstract of the Mining Laws (in force in the Philippines, 1902). Charles H. Burritt.

1902, Bulletin No. 1.—Platinum and Associated Rare Metals in Placer Formations. H. D. McCaskey, B. S.

1903.—Report of the Chief of the Mining Bureau of the Philippine Islands. Charles H. Burritt.

1903, Bulletin No. 2.—Complete List of Spanish Mining Claims Recorded in the Mining Bureau. Charles H. Burritt.

1903, Bulletin No. 3.—Report on a Geological Reconnoissance of the Iron Region of Angat, Bulacan. H. D. McCaskey, B. S.

1904.—Fifth Annual Report of the Mining Bureau. H. D. McCaskey.

1905.—Sixth Annual Report of the Chief of the Mining Bureau. H. D. McCaskey.

1905, Bulletin No. 4.—A Preliminary Reconnoissance of the Mancayan-Suyoc Mineral Region, Lepanto, P. I. A. J. Eveland, Geologist.

1905, Bulletin No. 5.—The Coal Deposits of Batan Island. Warren D. Smith, B. S., M. A., Geologist.

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[1] The first four bulletins in the ornithological series were published by The Ethnological Survey under the title "Bulletins of the Philippine Museum." The other ornithological publications of the Government appeared as publications of the Bureau of Government Laboratories.

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